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ABSTRACT

Based on data obtained in earlier phases of a comprehensive planning study, this report presents--(1) the development of a space projection model responsive to unique institutional requirements, and (2) a forecast of the aggregate academic space needs of higher education in Indiana for a given future enrollment level. The scope of the study and a general outline of the projection model are presented, followed by detailed descriptions of the development of the model and space requirement factors for each functional space category. Specific assumptions and limitations for each category are noted, together with a sample calculation for a hypothetical institution. The calculations for all space categories are summarized at the end of the model development section. The total projected requirements and the kinds and amounts of additional space needed are discussed, briefly analyzed, and summarized by school grouping and space type. (FS)

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FUTURE SPACE REQUIREMENTS FOR INDIANA'S INSTITUTIONS OF HIGHER EDUCATION

HIGHER EDUCATION IN INDIANA

Long Range Needs and Resources

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In cooperation with THE INDIANA CONFERENCE OF HIGHER EDUCATION

1970

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INDIANA HIGHER EDUCATION FACILITIES COMPREHENSIVE PLANNING STUDY

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FOREWORD

This paper is one of a series of specialized reports prepared as a part of a comprehensive study designed to provide a clear profile on an institutional and statewide basis of the current and future relationships between the demand for and the supply of higher education in Indiana. The study, which is programmed in three phases, will make possible the determination of the needs for higher education resources and facilities, as well as identification of various feasible alternatives for meeting those needs.

Survey data and analysis comprising the first phase of the study were published last year in a series of five current status reports, dealing with finances, enrollments, programs and personnel, student migration, and facilities inventories and utilization. Papers comprising the second phase of the study are devoted to long-run forecasts of needs and resources and related significant considerations. The third phase of the study will consist of a final report that will relate the data and the findings developed during the first phases of the study and include a proposed higher education computer simulation model designed to facilitate the analysis of the probable impact of a wide range of variables.

With cooperation from the Indiana Conference of Higher Education, the Indiana Higher Education Facilities Comprehensive Planning Study is sponsored by the Indiana Advisory Commission on Academic Facilities under grants from the U.S. Office of Education authorized by the Higher Education Facilities Act of 1963 (PL 88-204), as amended.

While emphasis of the comprehensive study is directed toward facilities needs, it is recognized that those needs are and will continue to be significantly affected by a broad spectrum of factors exerting substantial influences. The overall effort is, therefore, multifaceted and designed to provide

both factual data and professional analysis and opinion for higher educational policy makers at the institutional as well as state level. A resulting end product will hopefully be the encouragement of efficient higher education resources utilization and the progressive provision of academic facilities in keeping with realistic needs in consonance with available resources and compatible with programmed needs and demands.

The views and opinions expressed in this paper are those of the author and do not necessarily reflect those of the Indiana Advisory Commission on Academic Facilities, the Indiana Conference of Higher Education, or the Study Director and other members of the staff.

R. E. Masters
Executive Secretary
Indiana Advisory Commission
on Academic Facilities

ABOUT THE SERIES

This working paper is one of a series of specialized reports that have emanated from the Higher Education Facilities Planning Study undertaken in the summer of 1967 with the sponsorship of the Indiana Advisory Commission on Academic Facilities and the Indiana Conference on Higher Education.

As part of the study, a series of current status reports on the needs and resources of Indiana institutions of higher learning were published in the summer of 1968. These included the following:

Current Status Report 1-Finances

Current Status Report 2-Enrollment Projects

Current Status Report 3-Programs and Personnel

Current Status Report 4-Student Migration Patterns

Current Status Report 5-Facilities Inventory and Utilization

The working paper series results mainly from staff research during the second year of the study. Papers tentatively scheduled to be published in this series are:

A Simulation Model for Post-High School Education

Demand for Academic Programs

Determinants of Cost Differences

Faculty and Staff Needs

Financing Higher Education

Regional Demand for Post-High School Education

Survey of High School Senior Education Intentions

The Future Space Requirements

The final report, which will be based on all previous staff research efforts over the course of the study, is scheduled to be published in early 1970.

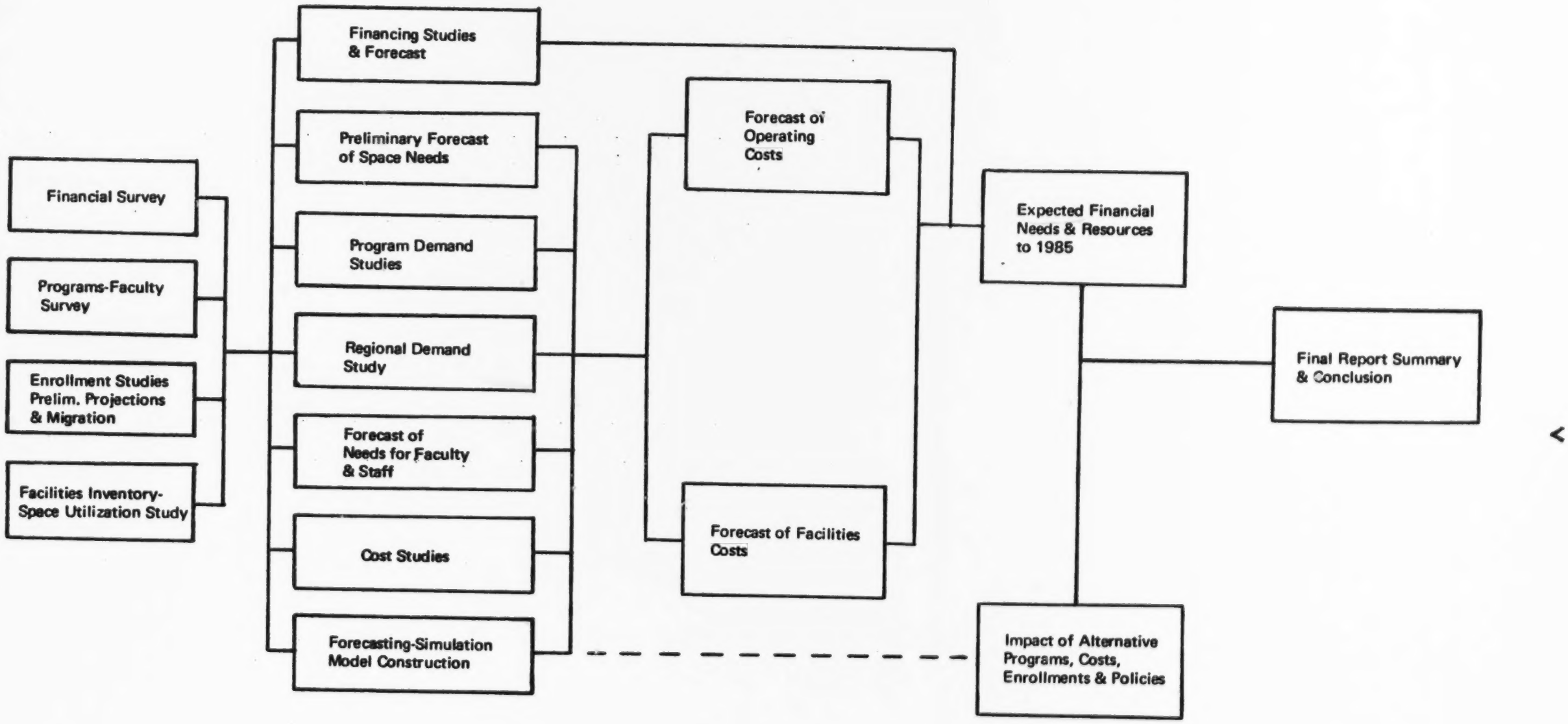
Our purpose in publishing this working paper series is to make available to those requesting documentation much of the research detail behind the findings and projections presented in our final report. The papers are essentially in draft form and do not necessarily receive the endorsement of other members of the staff, the membership of the Advisory Commission on Academic Facilities, or the Indiana Conference on Higher Education.

Charles F. Bonser

Study Director

Advisory Commission on Academic Facilities

DESIGN OF INDIANA HIGHER EDUCATION FACILITIES STUDY


Financing Studies & Forecast
Preliminary Forecast of Space Needs
Program Demand Studies
Regional Demand Study
Forecast of Needs for Faculty & Staff
Cost Studies
Forecasting-Simulation Model Construction
Financial Survey
Programs-Faculty Survey
Enrollment Studies Prelim. Projections & Migration
Facilities Inventory-Space Utilization Study
Forecast of Operating Costs
Forecast of Facilities Costs
Expected Financial Needs & Resources to 1985
Impact of Alternative Programs, Costs, Enrollments & Policies
Final Report Summary & Conclusion

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To Dr. Charles Bonser, Study Director and Associate Dean, School of Business, Indiana University, and Mr. Robert Masters, Executive Secretary, Indiana Advisory Commission on Academic Facilities, for their support, advice and counsel given during the many preparatory months of this study.

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And above all to my wife, Rosemary, and daughters, Susan (Leffert), Roseanne, Carole and Nancy.

James F. Blakesley
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HIGHLIGHTS

TOTAL PROJECTED SPACE REQUIREMENTS FOR 1985

1. Indiana's institutions of higher education will require approximately 19.5 million assignable square feet of academic-administrative space to accommodate the 310,000 students expected by 1985. This total area is about 55 percent greater than the 1967 statewide inventory and should satisfy the needs of the estimated 94 percent enrollment increase.

2. This projection is based on an enrollment estimate which is slightly less than the peak expected in 1982. Therefore, the maximum space requirements may occur before 1985.

NEW FACILITIES NEED

3. To meet the projected requirements, approximately 8.7 million assignable square feet of new facilities must be added by 1985. (Existing facilities will satisfy about 10.8 million square feet of the total requirement.)

4. About 89 percent of this additional space will be needed to accommodate the projected enrollment increases while the remaining 11 percent, about one million square feet, will be needed to replace current inventory classified in the demolish category.

NEW FACILITIES BY CAMPUS GROUPS

5. Slightly more than half of the new facilities will be needed at

the state-supported universities while about one-third will be required by the state-supported regional campuses. (Appendix A, page 71.)

6. The regional campuses will require the greatest percentage increase (about 350%) over their 1967 useable inventory while state universities will require the second largest percentage increase (about 73%).

7. It was assumed that the proportion of part-time students at the regional campuses would remain unchanged from 1967. If a greater proportion of the enrollments at these campuses do in fact become full-time, then their need for new facilities would increase significantly. (Their percentage increase of space needed over the 1967 useable inventory then perhaps would be as much as 460 - 530%.)

8. Privately-supported campuses have the potential for the greatest relative growth within existing facilities. The religion and theology schools are particularly "blessed" with excess capacity in some room types.

NEW FACILITIES BY FUNCTIONAL SPACE CATEGORY

9. Office space will be the largest statewide need (1.9 million sq. ft.) while the need for library facilities is a close second (1.6 million square feet). These comprise 22 percent and 19 percent respectively of the 8.7 million square feet of new facilities needed.

10. Classrooms and teaching laboratories together account for only 18 percent of the statewide new facilities need.

11. General use and service facilities will require the greatest percentage increase (about 150%) over its 1967 useable inventory.

EXISTING FACILITIES

12. Slightly more than 2.2 million assignable square feet of existing academic-administrative space will need to be either remodeled or altered before 1985.

13. About 1.1 million assignable square feet is beyond rehabilitation and classified in the demolish category.

THE SPACE PROJECTION MODEL

14. This model projects space only for academic-administrative functions. Facilities for residential and supplementary functions are not considered. (Refer to page 2.)

15. Space requirements were projected in detail for each campus. However, results are reported only on a campus-group basis.

16. The model was designed, as much as possible, to consider each campus's own unique program characteristics and operating policies.

17. A "status quo" assumption was used for most data describing a campus's programs and student mix as well as for the operating week policy. However, improved space utilization is projected by applying independently developed space requirement factors (SRF).

CHAPTER I. INTRODUCTION

GENERAL

The facilities portion of the first phase of the Indiana Higher Education Facilities Comprehensive Planning Study (IHEFCPS), conducted in 1967, was designed to answer the questions, "What facilities are available?" and "How well are they used?" Utilizing the data base and results which were developed from that "current status" report,[1] this working paper is directed towards answering the question, "What are the future space requirements?" The primary objectives of this study are therefore twofold:

(1) The development of a space projection model responsive to unique institutional requirements.

(2) A forecast of aggregate academic space needs of higher education in Indiana for a given future enrollment level.

The scope of this study together with a general outline of the projection model is presented in Chapter I. Chapter II describes in detail the development of the model and space requirements factors for each functional space category. Specific assumptions and limitations for each category are also noted together with a sample calculation for a hypothetical institution to aid the reader in understanding the mechanics of the projection model. The calculations for all space categories are summarized at the end of the model development section. The total

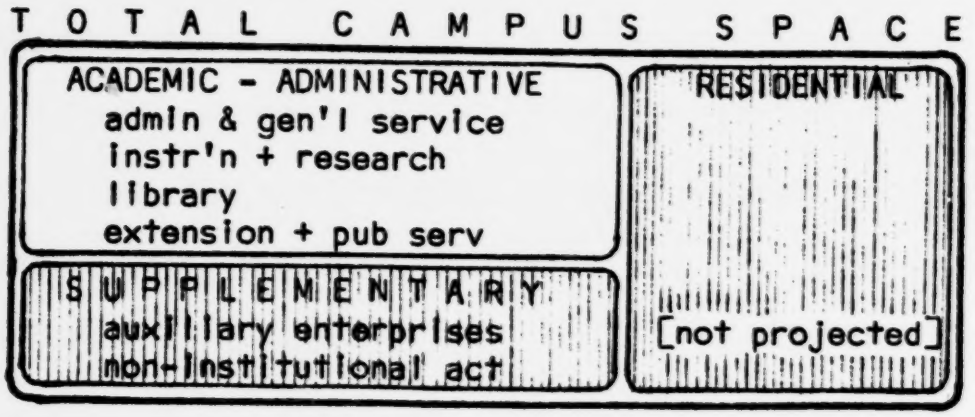
[1] P. C. Bayless, J. F. Blakesley, W. C. Sherwood and F. H. Wolf, Indiana Facilities Utilization Survey for Colleges and Universities, Fall 1967, Current Status Report 5, Indiana Advisory Commission on Academic Facilities, Indiana University, Bloomington, Indiana.

projected requirements as well as the kinds and amounts of additional space needed are discussed and briefly analyzed in Chapter III - Statewide Academic-Administrative Space Requirements. These results are summarized by school grouping and space type.

SCOPE

This study encompasses nearly all colleges and universities in the Indiana Conference on Higher Education. Space requirements are projected for 47 participating campuses which, in 1967, accounted for about 97 percent of the statewide student enrollment. These schools are listed by campus group in Appendix A, page 70.

The emphasis of the overall planning study (IHEFCPS) is on the academic resource needs of Indiana's institutions of higher education. Accordingly, only the academic-administrative space requirements have been projected in this paper. These encompass the essential core of the total campus space necessary to serve the departments whose functions are administrative and general service, instruction and research, library, and extension and public service.



The building areas for residential needs together with those used for auxiliary enterprises, such as student unions and intercollegiate athletics, and for non-institutional functions are excluded from the projection. (See Appendix B for definitions.)

Space needs are not forecast for medical schools or the Indiana Vocational Technical College. Neither is space expressly provided for separately operated non-credit adult education activities at the campuses participating in this study. While these continuation programs are an important adjunct to higher education, space projections for them are not specifically included since they generally utilize facilities outside the institution's normal academic week.

Other important physical plant requirements which are not estimated include land acquisition needs, utility systems, and transportation and parking facilities. It should be noted that the capital requirements for these facilities are not insignificant and should not be overlooked when considering total statewide resource needs.

The enrollment level used in making the space projection was developed independently in another portion of the Indiana Higher Education Comprehensive Facilities Planning Study and is associated with the target year 1985. However, it should be noted that this level may not represent the greatest student demand within the planning horizon. Parkhurst, et al, estimate that Indiana's college enrollments will peak in 1982 and then decline approximately five percent through 1985.[2] Therefore, the space requirements projected in this study do not represent the maximum demand for space which may occur within the planning period.

[2]Parkhurst and Suddarth, Potential Enrollment for Indiana Colleges and Universities 1968 to 1985, Current Status Report 2, Indiana Advisory Commission on Academic Facilities, Indiana University, Bloomington, Indiana.

METHODOLOGY

One of the primary considerations in the development of the projection model was that the important variations and differences in programs and policies which exist among campuses were to be recognized. At the same time common space utilization or projection standards were applied wherever appropriate. The projection of space requirements was therefore done on a campus by campus basis and within each campus, by space category. Although the results are summarized by school groups (keeping each campus's data confidential) the projection did not use group averages for those input data related to the characteristics of campus instructional and research programs. Instead, individual campus data were used where possible, often using a "status quo" assumption, to reflect each campus's unique academic environment.

In brief, the procedural steps involved in the projection model consist of delineating homogeneous functional space categories and then for each category determining the generating element, developing a space requirements factor and, finally, multiplying the space requirements factor by the appropriate generating element.

The generating element for each space category may be thought of as the basic unit of demand for that space. For example, in the case of instructional activities, a non-laboratory student contact hour is the generating element for classrooms while a student contact hour of gymnasium instruction becomes the basic unit of demand for gymnasium space. Similarly, full-time-equivalent (FTE) staff requiring office space is used as the generator for office requirements.

The space required per unit of demand is called a "Space Requirement Factor" (SRF). (Example expressions of this factor are sq. ft. per

student contact hour, sq. ft. per FTE staff, sq. ft. per library volume, etc). The space requirement factors used in this model were obtained in various ways. Some have been adopted from widely accepted utilization standards while a few are simply empirical averages based on the data from the 1967 Indiana Facilities Utilization Survey (IFUS). Still others are derived from a combination of utilization goals and normative data modified by measures related to the unique program and/or operating characteristics of each campus. The measures used in the derivation of the space requirement factors represent values which are considered to be reasonable utilization levels. They reflect utilization rates which are in fact being attained by at least a large percentage of schools. Many of the measures, it should be noted, were related to the volume of instructional activity thus recognizing the fact that some efficiencies may be expected to change with changes in campus size. The space requirement factors derived from these measures are therefore practicable, useable values which can be achieved with judicious management of resources. The resulting space projection is thus considered to be realistic without being overly generous.

Two "words" of caution are in order. First, it should be kept in mind that improved space utilization should not necessarily be equated with gains in educational quality or in the academic environment of a campus. While it is usually possible to improve the level of space utilization and at the same time also improve or at least maintain a given quality of educational environment, there will probably always be circumstances in which a "trade-off" between improved space utilization and other educational factors will arise. Obviously, the individual choices of decision makers in such situations cannot be incorporated into

a generalized projection model. Second, in studying the projection model and the results presented in this paper, the reader is also urged to carefully review the definitions of input variables and space categories before attempting to make comparisons with the results of similar studies or before drawing any conclusions concerning relative needs among states. Important definitional differences exist which, in some instances, prohibit making a casual comparison.

CHAPTER II. MODEL DEVELOPMENT

In this chapter, the specific assumptions, generating elements, rationale, and mechanics of the model are detailed by functional space category. Each of these categories consists of several room classifications with similar characteristics. The grouping of the room classifications within the broader functional space categories has been altered slightly from that shown in Appendix B in order to be appropriate to the generating element used for the space category. For all categories, the ancillary service space for the basic room types within a space category has been included.

A sample calculation for a hypothetical campus is shown for each space category as an aid in understanding the model. The total space requirements generated for the hypothetical campus are summarized by functional space category at the end of this chapter.

All projected areas are expressed in terms of net assignable square feet. Gross square footage, which also includes public rest rooms and mechanical, circulatory, and construction areas, may be approximated by multiplying the net assignable area by a factor of 1.67.

C L A S S R O O M S

ROOM TYPES INCLUDED

Lecture, recitation, and seminar rooms plus associated service areas.

GENERATING ELEMENT

Student contact hours (SCH) of classroom instruction, i.e., non-laboratory student contact hours.

BASIC FORMULA

$$\text{CLASSROOM SPACE NEED} = \frac{\text{NON-LAB SCH}}{\text{ENROL}} \text{ PER } \times \text{ ENROL } \times \text{ SQ FT PER SCH}$$

ASSUMPTIONS AND LIMITATIONS

(1) The student mix, programs and curricula will remain "status quo". Therefore, the non-laboratory student contact hour per enrollment ratio for each campus will be equal to its 1967 value.

(2) Each campus's nominal operating hours per week will remain unchanged from 1967.

RATIONALE

The non-lab student contact hours per enrollment ratio is a measure of average student demand for classroom facilities. Each campus's 1967 unique value is used in order to reflect the differences among the campuses in existing program requirements and mix of students.

The square feet per student contact hour ratio (or square feet per station hour of use) is derived, as shown below, from three measures: (a) the area required per station, (b) the average weekly hours of room use, and (c) the percent station occupancy or the percent of stations occupied when rooms are used.

$$\text{SQ FT PER SCH} = \frac{\text{SQ FT PER STATION}}{\text{WEEKLY HOURS OF ROOM USE} \times \text{PERCENT STATION OCCUPANCY}}$$

The 1967 Indiana Facilities Utilization Survey (IFUS) revealed a definite pattern of larger schools having, on the average, larger classes and hence a need for larger classrooms. Larger rooms generally require less area per station since proportionately less space is lost to aisles and the instructor's area. Therefore, square feet per station values have been varied inversely

RATIONALE CONT'D

to the number of non-lab student contact hours. A range of 14 to 17 square feet per station has been used to differentiate among campuses. This is in contrast to many studies which have adopted a common standard of 15 square feet per station for schools of all sizes.

The method of determining the average weekly hours of room use takes into account the varying lengths of work-week which, because of policy differences, exist among campuses. It is given by:

WEEKLY HOURS OF ROOM USE	=	HOURS OF OPERATION PER WEEK	x	PERCENT USE OF OPERATING WEEK

where for each campus the hours of operation per week include the daytime and evening hours during which classes were scheduled. Since campus policies are not likely to change greatly, the 1967 hours of operation per week is used to reflect the most likely operating conditions for each campus in the projection year. This procedure represents a departure from the methods used in many other studies which adopt a standard workweek for all institutions.

Analysis of the data gathered for the 1967 Indiana Facilities Utilization Study indicated that a positive relationship exists between campus size and the percent use of operating week. Because it was found that schools with larger numbers of non-laboratory student contact hours tend to utilize their classrooms a higher percentage of the hours in their operating week, the percent use of operating week is varied with the number of non-laboratory student contact hours.

No significant relationship between percent station occupancy and campus size was determined from the 1967 Indiana Facilities Utilization Survey. Values ranged from 29 to 77 percent with 60 percent representing about the sixty-sixth percentile. Although a higher percent station occupancy can be obtained in individual rooms, overall campus averages will not generally be much above this value without implementation of improved methods for room scheduling.

CLASSROOMS SUMMARY

COMPLETE FORMULA

$$\text{CLASSROOM SPACE NEED} = \text{NON-LAB SCH PER ENROL} \times \text{ENROL} \times \text{SQ FT PER SCH}$$

where

$$\text{SQ FT PER SCH} = \frac{\text{SQ FT PER STATION}}{\text{HOURS OF OPERATION PER WEEK} \times \text{PCT USE OF OPERATING WEEK} \times \text{PERCENT STATION OCCUPANCY}}$$

TABLE OF VALUES

TOTAL NON-LAB SCH	SQ FT PER STATION	HOURS OF OPERATION PER WEEK	PCT USE OF OPERATING WK	PERCENT STATION OCCUPANCY
0- 9,999	17	Campus	60	60
10,000-29,999	16	policy.	62	60
30,000-99,999	15	Range =	64	60
100,000 & UP	14	40-70	66	60

EXAMPLE

The classroom space need for a hypothetical institution of 2500 enrollment with an average of 13.5 non-lab student contact hours per enrollment (33,750 total non-lab SCH) and operating on a 50-hour week is determined as follows:

$$\text{SQ FT PER SCH} = \frac{\text{15 SQ FT PER STATION}}{\text{50 HRS OF OPERATION PER WEEK} \times \text{64 PCT USE OF OPERATING WEEK} \times \text{60 PCT STATION OCCUPANCY}}$$

$$= 0.78$$

$$\text{CLASSROOM SPACE NEED} = \text{13.5 NON-LAB SCH PER ENROLLMENT} \times \text{2500 ENROL} \times \text{0.78 SQ FT PER SCH}$$

$$= \underline{\text{26,400 SQ FT}}$$

TEACHING LABORATORIES

ROOM TYPES INCLUDED

Teaching laboratories and associated service areas.

GENERATING ELEMENT

Student contact hours (SCH) of laboratory instruction.

BASIC FORMULA

$$\text{TEACHING LABORATORY SPACE NEED} = \text{LABORATORY SCH PER ENROL} \times \text{ENROL} \times \text{SQ FT PER SCH}$$

ASSUMPTIONS AND LIMITATIONS

(1) The program, curricula, and student mix will remain "status quo". Therefore, the laboratory student contact hours per enrollment ratio for each campus will remain equal to its 1967 value.

(2) For each campus, the average area per instructional station will remain unchanged from its 1967 value.

(3) Each campus's nominal operating hours per week will remain unchanged from 1967.

RATIONALE

The laboratory student contact hours per enrollment ratio is a measure of average student demand for teaching laboratories. Each campus's unique 1967 value is used in order to reflect the differences among the campuses in existing program requirements and mix of students.

The square feet per student contact hour ratio is uniquely derived for each campus, as shown below, from three measures: (a) the campus average area per station, (b) the average weekly hours of room use, and (c) the percent station occupancy or the percent of stations occupied when rooms are used.

$$\text{SQ FT PER SCH} = \frac{\text{SQ FT PER STATION}}{\text{WEEKLY HOURS OF ROOM USE} \times \text{PERCENT STATION OCCUPANCY}}$$

Because of the unique characteristics of teaching laboratories, these measures differ considerably from classrooms. The average square feet per instructional station (i.e., laboratory plus service area divided by stations in laboratories) will vary widely from school

RATIONALE CONT'D

to school. The overall campus average will depend upon a composite of many factors, particularly upon the kinds and relative mix of programs requiring instructional laboratories. Because of these wide variations, no single value for the laboratory area per station can be established which will meaningfully represent all schools. It would have been preferable to establish unique area per station values for laboratories with common characteristics; however the data were not sufficiently detailed to develop these factors. Therefore, the 1967 average area per station for each campus is used. Use of this value assumes that each campus's mix and proportion of laboratory related programs and their requirements will remain "status quo" and implies that the 1967 value was neither excessive nor restrictive in meeting the instructional laboratory needs for the programs which existed at each campus at that time.

As for classrooms, the method for determining the average weekly hours of room use takes into account the varying lengths of the workweek which, because of policy differences, exist among campuses. It is given by:

WEEKLY HOURS OF ROOM USE	=	HOURS OF OPERATION PER WEEK	x	PERCENT USE OF OPERATING WEEK

where, for each campus, the hours of operation per week include the daytime and evening hours during which classes are scheduled. Since campus policies are not likely to change greatly, the 1967 hours of operation per week is used to reflect the most likely operating conditions for each campus in the projection year.

The data gathered for the 1967 IFUS study showed that a positive relationship exists between the volume of laboratory student contact hours and the percent use of operating week. Therefore, the percent use of operating week for teaching laboratories is varied by laboratory student contact hours volume but the values are lower than for classrooms. The lower values are primarily due to the greater use of consecutive-period class sessions, the need to occasionally pre-empt some periods for set-up activities, and the smaller number of classes that can utilize these relatively non-interchangeable facilities. These factors work to restrict the scheduling flexibility of laboratories and therefore reduce their average weekly hours of room use in comparison to classrooms.

RATIONALE CONT'D

The 1967 IFUS study supported the commonly observed finding that the percent station occupancy for laboratories is generally higher than for classrooms. Two factors provide partial explanation for this difference. First, the room alternatives for laboratory instruction are usually much more limited than for non-laboratory instruction, i.e., there may be only one zoology laboratory on campus compared to several classrooms. As a result, section sizes are tailored more closely to the size of available facilities. Second, because of the staff time involved, there is a tendency to resist creating additional sections when a larger demand than anticipated occurs for a given laboratory course. In such a situation, normal practice is to make every effort to fill any station vacancies in existing sections and create another section only when a substantial number of stations of the new section can be filled. These two inter-related factors work to create high percent station occupancy values for laboratories.

A station occupancy range of 60 to 72 percent has been used since it has been found that as the volume of laboratory student contact hours increases the possibility of achieving a higher percent station occupancy also tends to increase.

It should be noted that the projected teaching laboratory need includes the equivalent US Office of Education (USOE) room classifications of class laboratory, special class laboratory, and associated service areas. The special class laboratory classification is sometimes not included in the teaching laboratory category in other studies.

TEACHING LABORATORIES SUMMARY

COMPLETE FORMULA

$$\text{TEACHING LABORATORY SPACE NEED} = \text{LAB SCH PER ENROL} \times \text{ENROL} \times \text{SQ FT PER SCH}$$

where

$$\text{SQ FT PER SCH} = \frac{\text{SQ FT PER STATION}}{\text{HOURS OF OPERATION PER WEEK} \times \text{PCT USE OF OPERATING WEEK} \times \text{PERCENT STATION OCCUPANCY}}$$

TABLE OF VALUES

TOTAL LAB SCH	SQ FT PER STATION	HOURS OF OPERATION PER WEEK	PCT USE OF OPERATING WK	PERCENT STATION OCCUPANCY
0- 999	Each	Campus	34	60
1,000-1,999	campus's	policy.	38	64
2,000-3,999	1967	Range =	42	68
4,000 & UP	average	40-70	46	72

EXAMPLE

The teaching laboratory space need for a hypothetical institution of 2500 enrollment with an average of 2.1 laboratory student contact hours per enrollment (5,250 total lab SCH), 50 square feet per teaching laboratory instructional station, and operating on a 50-hour week is determined as follows:

$$\text{SQ FT PER SCH} = \frac{\text{50 SQ FT PER STATION}}{\text{50 HRS OF OPERATION PER WEEK} \times \text{46 PCT USE OF OPERATING WEEK} \times \text{72 PCT STATION OCCUPANCY}}$$

$$= 3.02$$

$$\text{TEACHING LABORATORY SPACE NEED} = \text{2.1 LAB SCH PER ENROL} \times \text{2500 ENROL} \times \text{3.02 SQ FT PER SCH}$$

$$= \underline{\text{15,900 SQ FT}}$$

SELF STUDY AND TEACHING CLINIC - PART I

ROOM TYPES INCLUDED — Self study (music practice portion).

GENERATING ELEMENTS — Music practice hours.

BASIC FORMULA

$$\text{SELF STUDY SPACE NEED (MUSIC PRAC)} = \text{MUSIC PRACTICE HOURS PER ENROL} \times \text{ENROL} \times \text{1.2 SQ FT PER MUS PRAC HR}$$

ASSUMPTIONS AND LIMITATIONS

(1) The student mix and music programs and curricula will remain "status quo". Therefore, the music studio hours per enrollment ratio for each campus will be equal to its 1967 value.

RATIONALE

Music practice is one kind of individual study which generates a need for a specialized portion of self study space. Analysis of the data gathered for the 1967 IFUS report indicates that at most schools an average of five hours of individual practice is required for each half-hour of private instruction (or music studio). Music practice hours per enrollment is thus given by:

$$\text{MUSIC PRACTICE HOURS PER ENROL} = \text{MUS STUDIO HOURS PER ENROL} \times \text{10 MUS PRAC HRS PER MUS STUDIO HOUR}$$

The square feet per music practice hour ratio is developed in a manner similar to the space requirements factor for classrooms and teaching labs:

$$\text{SQ FT PER MPH} = \frac{\text{SQ FT PER STATION}}{\text{WEEKLY HOURS OF ROOM USE} \times \text{PERCENT STATION OCCUPANCY}}$$

The value of the ratio is determined by considering that music practice rooms have a single station and therefore have 100 percent station occupancy when used, have an average size of 72 square feet, and can be used at least 60 hours per week. The high weekly hours of room use is

possible because of the scheduling flexibility which results from individual student use. Since faculty and other students need not be present normally, each student is free to adjust his own practice schedule to fit the available room hours.

SELF STUDY AND TEACHING CLINIC - PART I - SUMMARY

COMPLETE FORMULA

$$\text{SELF STUDY SPACE NEED (MUSIC PRAC)} = \text{MUSIC PRACTICE HOURS PER ENROL} \times \text{ENROL} \times \text{1.2 SQ FT PER MUS PRAC HR}$$

where

$$\text{MUS PRAC HOURS PER ENROL} = \text{MUS STUDIO HOURS PER ENROL} \times \text{10 MUS PRAC HOURS PER MUS STUD HR}$$

and

$$\text{SQ FT PER MUS PRAC HR} = \frac{\text{72 SQ FT PER STATION}}{\text{60 WEEKLY HOURS OF ROOM USE} \times \text{100 PERCENT STATION OCCUPANCY}} = 1.2$$

EXAMPLE

The music practice room space need for a hypothetical campus with 2500 enrollment and a 0.04 music studio hours per enrollment ratio is determined as follows:

$$\text{MUS PRAC HOURS PER ENROL} = \text{0.04 MSH PER ENROL} \times \text{10 MUS PRAC HR PER MSH} = 0.40$$

$$\text{SELF STUDY SPACE NEED (MUSIC PRAC)} = \text{0.40 MUS PRACTICE HOURS PER ENROL} \times \text{2500 ENROL} \times \text{1.2 SQ FT PER MUS PRAC HR}$$

$$= \underline{\text{1200 SQ FT}}$$

SELF STUDY AND TEACHING CLINIC - PART 2

ROOM TYPES INCLUDED

Teaching clinic and other self study (excludes music practice).

GENERATING ELEMENT

Individual study hours (ISH) other than music practice.

BASIC FORMULA

$$\text{TCHG CLINIC \& SELF STUDY} = \text{INDIV STUDY HOURS PER ENROL} \times \text{ENROL} \times \text{SQ FT PER ISH}$$

ASSUMPTIONS AND LIMITATIONS

(1) The program, curricula, and student mix will remain "status quo." Therefore the individual study course enrollments per enrollment ratio will be the same as in 1967.

(2) Each student enrolled in an individual study course generates two individual study hours per week.

(3) Each campus's nominal operating hours per week will remain unchanged from 1967.

RATIONALE

The need for teaching clinic areas and self study space is generated by students enrolled in individual study courses. Clinical consultations and independent projects, which may require specialized space, are the types of activity generally characteristic of such courses. It is assumed that each student enrolled in individual study courses spends on the average two hours per week to satisfy course requirements. Individual study hours per enrollment is thus given by:

$$\text{INDIV STUDY HRS PER ENROL} = \frac{\text{INDIV STUDY ENROL PER ENROL (EXCLUDING MUSIC)}}{\text{2 INDIV STUDY HRS PER INDIV STDY ENROL}}$$

The square feet per individual study hour ratio is developed in a manner similar to the space requirement factor for classrooms:

$$\text{SQ FT PER ISH} = \frac{\text{SQ FT PER STATION}}{\text{WEEKLY HOURS OF ROOM USE} \times \text{PERCENT STATION OCCUPANCY}}$$

Typically, clinical areas such as those used in speech, hearing and psychology require approximately 50 square feet per station. The average area required for independent study projects is assumed to be approximately the same. Therefore, 50 square feet per station is used for developing the space requirement factor for those room types.

Because these facilities are usually single station units, the percent station occupancy value is 100. The weekly hours of room use is derived in a manner similar to that for classrooms and teaching labs as follows:

WEEKLY HOURS OF ROOM USE	=	HOURS OF OPERATION PER WEEK	x	PERCENT USE OF OPERATING WEEK

The use of these spaces, which are primarily clinical, is considered to be similar to that of teaching labs; however a higher percentage use of operating week is possible because of the scheduling flexibility which results from individualized use. Therefore the percent use of operating week is set at 50, independent of campus size.

SELF STUDY AND TEACHING CLINIC - PART 2 - SUMMARY

COMPLETE FORMULA

$$\text{TCHG CLINIC \& SELF STUDY SPACE NEED} = \text{INDIV STUDY HOURS PER ENROL} \times \text{ENROL} \times \text{SQ FT PER ISH}$$

where

$$\text{INDIV STUDY HRS PER ENROL} = \text{INDIV STUDY ENROL PER ENROL (EXCLUDING MUSIC)} \times \text{2 INDIV STUDY HRS PER INDIV STUDY ENROL}$$

and

$$\text{SQ FT PER ISH} = \frac{\text{50 SQ FT PER STATION}}{\text{HOURS OF OPERATION PER WEEK} \times \text{50 PCT USE OF OPERATING WEEK} \times \text{100 PCT STATION OCCUPANCY}}$$

EXAMPLE

The teaching clinic and self study space need, excluding music practice rooms, for a campus with 2500 enrollment, 0.1 individual study enrollments per enrollment, and operating on a 50-hour week is determined as follows:

$$\text{INDIV STUDY HRS PER ENROL} = \text{0.1 INDIV STUDY ENROL PER ENROL} \times \text{2 INDIV STUDY HRS PER INDIV STUDY ENROL} = 0.2$$

$$\text{SQ FT PER ISH} = \frac{\text{50 SQ FT PER STATION}}{\text{50 HRS OF OPERATION PER WEEK} \times \text{50 PCT USE OF OPERATING WEEK} \times \text{100 PCT STATION OCCUPANCY}}$$

$$= 2.0$$

$$\text{TCHG CLINIC \& SELF STUDY SPACE NEED} = \text{0.2 IND STUDY HR PER ENROL} \times \text{2500 ENROL} \times \text{2.0 SQ FT PER ISH}$$

$$= \underline{\text{1000 SQ FT}}$$

GYMNASIUM

ROOM TYPES INCLUDED

Gymnasium and associated service areas.

GENERATING ELEMENT

Student contact hours (SCH) of gymnasium instruction.

BASIC FORMULA

$$\text{GYMNASIUM SPACE NEED} = \text{GYM SCH PER UNDER-GRAD ENROL} \times \text{UNDER-GRADUATE ENROL} \times \text{SQ FT PER SCH}$$

(IF THE CALCULATED NEED IS GREATER THAN ZERO BUT LESS THAN 6000 SQUARE FEET, THEN GYMNASIUM SPACE NEED IS SET EQUAL TO 6000 SQUARE FEET.)

ASSUMPTIONS AND LIMITATIONS

(1) Physical education programs and requirements will remain "status quo". Therefore, the gym student contact hour per undergraduate enrollment ratio for each campus will be equal to its 1967 value. This implies that those schools without gym student contact hours in 1967 will not require gymnasium facilities by the projection year.

(2) Gymnasium student contact hours are generated exclusively by undergraduate enrollments.

(3) Space is not generated for intercollegiate or intramural sports.

RATIONALE

The academic courses which require the use of gymnasium facilities are generally undergraduate oriented. Thus, the gymnasium student contact hours per undergraduate enrollment is considered an appropriate measure of the demand for gymnasium facilities.

The square feet per student contact hour ratio (or square feet per station hour of use) is derived, as shown below, from three measures: (a) area per station, (b) weekly hours of room use and (c) the percent station occupancy or the percent of stations occupied when the rooms are used.

$$\text{SQ FT PER SCH} = \frac{\text{SQ FT PER STATION}}{\text{WEEKLY HOURS OF ROOM USE} \times \text{PERCENT STATION OCCUPANCY}}$$

RATIONALE CONT'D

The value of the square feet per station ratio, set at 200, is considerably higher than that used for classrooms and teaching labs because of the nature of the activities occurring in gymnasium facilities and the greater service area requirements associated with these facilities. Since gymnasium activities vary greatly, from group calisthenics to singles tennis matches, 200 square feet represents an average area per station needed to provide the space necessary for these diverse activities.

As for classrooms and teaching laboratories, the method for determining the average weekly hours of room use takes into account the varying lengths of workweek which, because of policy differences, exist among campuses. It is given by:

WEEKLY HOURS OF ROOM USE	=	HOURS OF OPERATION PER WEEK	x	PERCENT USE OF OPERATING WEEK

where, for each campus, the hours of operation per week include the daytime and evening hours during which classes are scheduled. Since campus policies are not likely to change greatly, the 1967 hours of operation per week is used to reflect the most likely operating conditions for each campus in the projection year.

Similar to the finding for classrooms, the 1967 IFUS data indicated a positive relationship between percent use of operating week and the volume of gymnasium student contact hours; the value of this ratio is therefore varied accordingly. Since the room scheduling characteristics are similar to classrooms, the percent use of operating week values are the same as those used for classrooms. A value of 60 percent station occupancy is considered a reasonable utilization standard.

As indicated in the formula above, the projected requirement is set at 6000 square feet if the calculated need for campuses which have gymnasium instruction is less than 6000. This value represents what might be considered a minimum-sized facility, i.e., a basketball court plus some locker rooms and other service areas.

GYMNASIUM SUMMARY

COMPLETE FORMULA

$$\text{GYMNASIUM SPACE NEED} = \text{GYM SCH PER UNDER-GRAD ENROL} \times \text{UNDER-GRADUATE ENROL} \times \text{SQ FT PER SCH}$$

where

$$\text{SQ FT PER SCH} = \frac{\text{SQ FT PER STATION}}{\text{HOURS OF OPERATION PER WEEK} \times \text{PCT USE OF OPERATING WEEK} \times \text{PERCENT STATION OCCUPANCY}}$$

(IF THE CALCULATED NEED IS GREATER THAN ZERO BUT LESS THAN 6000 SQUARE FEET, THEN GYMNASIUM SPACE NEED IS SET EQUAL TO 6000 SQUARE FEET.)

TABLE OF VALUES

TOTAL GYM SCH	SQ FT PER STATION	HOURS OF OPERATION PER WEEK	PCT USE OF OPERATING WK	PERCENT STATION OCCUPANCY
0- 999	200	Campus	64	60
1,000-4,999	200	policy.	66	60
5,000-9,999	200	Range =	68	60
10,000 & UP	200	40-70	70	60

EXAMPLE

The gymnasium space need for a hypothetical institution of 2100 undergraduate enrollment with an average of 0.5 gym student contact hours per undergraduate enrollment (1,050 total gym SCH) and operating on a 50-hour week is determined as follows:

$$\text{SQ FT PER SCH} = \frac{\text{200 SQ FT PER STATION}}{\text{50 HOURS OF OPERATION PER WEEK} \times \text{66 PCT USE OF OPERATING WEEK} \times \text{60 PCT STATION OCCUPANCY}}$$

$$= 10.1$$

$$\text{GYMNASIUM SPACE NEED} = \text{0.5 GYM SCH PER UNDER-GRAD ENROL} \times \text{2100 UNDERGRAD ENROL} \times \text{10.1 SQ FT PER SCH}$$

$$= \underline{\text{10,600 SQ FT}}$$

DEMONSTRATION SCHOOL AND ARMORY

ROOM TYPES INCLUDED — Demonstration school, armory and associated service areas.

GENERATING ELEMENT — See assumptions and rationale below.

BASIC FORMULA

DEM SCHL AND ARMORY SPACE NEED	=	1967 DEM SCHOOL AND ARMORY SQ FT

ASSUMPTIONS AND LIMITATIONS

(1) The demand for demonstration school and armory facilities will remain constant.

(2) The space available in 1967 is adequate for 1985.

RATIONALE

The demonstration school classification includes campus-operated elementary and secondary schools and home management houses. In Indiana, there appears to be a trend away from using campus-owned laboratory schools and towards developing cooperative arrangements with local school systems to provide for practice teaching experience. On the other hand, the needs for home management houses and armories are believed to be relatively stable.

For those schools which reported having some demonstration school and armory facilities during the 1967 IFUS study, this space is projected forward without any increase or decrease. For all other schools no demonstration school or armory space was projected.

EXAMPLE

For a hypothetical campus with 1500 square feet of home management space on inventory in 1967, the space is carried forward without change.

RESEARCH LABORATORIES

ROOM TYPES INCLUDED

Research laboratories and research laboratory service areas.

GENERATING ELEMENTS

Full-time-equivalent research program related faculty (RFAC) and teaching related faculty (TFAC) plus head-count graduate students (GRAD) for each one of five research classifications (RC 1-5).

BASIC FORMULA

$$\text{RESEARCH LAB SPACE NEED} = \text{NUMBER OF RESEARCHERS} \times \text{SQ FT PER RESEARCHER}$$

where

$$\text{NUMBER OF RESEARCHERS} = \text{RFAC} \times \text{PCT RFAC DOING RESEARCH} + \text{TFAC} \times \text{PCT TFAC DOING RESEARCH} + \text{GRAD} \times \text{PCT GRAD DOING RESEARCH}$$

ASSUMPTIONS AND LIMITATIONS

(1) Total faculty and total graduate enrollment projections were provided as given inputs from other portions of the 1967 Indiana Higher Education Comprehensive Planning Study. Since these data were not sufficiently detailed to substitute directly into this facilities projection model, it was necessary to approximate the faculty distribution between teaching and research and their allocation to each of the five research classifications. (See page 26.) Consequently, the research space projection may be subject to a greater potential for error than the projection for some of the other primary room types.

(2) The 1985 FTE faculty per enrollment ratios for most schools varied from the 1967 values; therefore "status quo" conditions are not applicable to this portion of the model.

RATIONALE

A projection of research space for any given campus depends on several factors, some of which are very difficult to quantify and/or predict beyond the very

RATIONALE CONT'D

near future. The particular disciplines emphasized, the level and direction of government subsidies, the institution's policy concerning research, and even the interests of individual faculty members all have significant influences on the amounts and types of space required. In view of these unknowns, the projection of research space needs has been simply related to the three elements most likely to generate a requirement for this type of space. These elements are (1) FTE research faculty (RFAC)--those faculty who spend a significant portion of their time engaged in and directing research activities, (2) FTE teaching faculty (TFAC)--those faculty who are primarily related to teaching or administrative functions but who may also do some research, and (3) graduate students.

For research faculty (RFAC), the percent doing research is set at 100 since, by definition, all of these faculty will require research space. The percent of teaching faculty doing research will normally be much lower since only a portion of these faculty members may also engage in research activities and then only on a part-time or limited basis. While it is possible that the percent of teaching faculty doing research may vary from school to school, reflecting policy differences, 20 percent was considered a reasonable value to use for all campuses in the absence of more detailed data.

The percent of graduate students doing research for each campus depends on the requirements of the programs offered, and on the proportion of graduates who have progressed to the research phase of their programs. Some advanced degree programs consist of course work only with no research required. Obviously a campus with a large number of its graduates in such a program would have a much lower percentage of its graduates doing research than one at which all graduate curricula have research requirements. Based on these considerations, the percentage of graduates doing research for each campus was established within a range of 5 to 30 percent.

To give recognition to the variability in the amount of space required per researcher among departments and disciplines, five broad departmental classifications have been used. These classifications, together with the space requirements factor for each, are described below:

Research Classification 1 (RC 1) - Departments included in this classification do not, by definition, require

RATIONALE CONT'D

research facilities. Typical departments are administration, counseling, and military science.

Research Classification 2 (RC 2) - Those subject areas in departments which normally require some non-specialized research space and only very incidental specialized facilities are included in this category. Some examples are English, history, political science, religion and theology, mathematics, sociology, music, education, economics, physical education, etc. A nominal amount of space, 10 square feet, is allocated for each researcher. This space may not necessarily be laboratory but could be office facilities or other room types depending on the discipline.

Research Classification 3 (RC 3) - This classification applies to subject fields which require modest amounts of either specialized or non-specialized research facilities. Examples include clinical and social psychology, fine and applied arts, archaeology, nursing, computer science, industrial arts, geography, graphics, etc. The area per researcher for this category is set at 80 square feet.

Research Classification 4 (RC 4) - In general, this classification covers the physical sciences and other disciplines where significant amounts of specialized facilities plus moderate amounts of support space are required. Examples include chemistry, physics, geology, engineering, clothing and textiles, pharmacy, anthropology, etc. The area per researcher for this classification consists of a basic research module of 160 square feet plus 80 square feet of service space such as instrument rooms and storage areas.

Research Classification 5 (RC 5) - This category generally encompasses the life sciences where significant amounts of specialized facilities and large amounts of support space may be required. Some examples are biology, zoology, anatomy, animal science, botany, entomology, forestry, microbiology, horticulture, and veterinary science. The research module of 160 square feet plus 240 square feet of service space such as greenhouses, animal quarters, and storage areas, comprise the total 400 square feet per researcher used for this classification.

The area established for each of these categories must be considered an average area per station since it is recognized that variations will still exist among

RATIONALE CONT'D

departmental requirements within a single research classification.

As noted earlier, only total faculty and total graduate student data for each campus were supplied as inputs to this model. The assumptions and methods used to approximate the data required for the laboratory space projection is outlined on page 31.

RESEARCH LABORATORIES - SUMMARY

COMPLETE FORMULA

$$\text{RESEARCH LAB SPACE NEED } RC_i = \text{NUMBER OF RESEARCHERS IN } RC_i \times \text{SQ FT PER RESEARCHER IN } RC_i$$

where

$$\text{NUMBER OF RESEARCHERS IN } RC_i = \text{RFAC IN } RC_i \times \text{PCT RFAC DOING RESEARCH}$$
$$+ \text{TFAC IN } RC_i \times \text{PCT TFAC DOING RESEARCH}$$
$$+ \text{GRAD IN } RC_i \times \text{PCT GRAD DOING RESEARCH}$$

and RFAC = FTE research faculty
TFAC = FTE teaching related faculty
GRAD = Graduate students
RC_i = Research classifications 1 through 5

TABLE OF VALUES

RESEARCH CLASS'N	SQ FT PER RESEARCHER	PERCENT DOING RESEARCH		
		RFAC	TFAC	GRAD
RC 1	0	100	20	Varies by
RC 2	10	100	20	campus.
RC 3	80	100	20	Range =
RC 4	240	100	20	5-30%.
RC 5	400	100	20	

EXAMPLE

Assume that a hypothetical institution has 21 FTE research faculty, 119 FTE teaching faculty and 400 graduate students distributed among the five research classifications as indicated in the table below. Also assume that 10 percent of its graduates have reached the research phase of their studies.

RESEARCH CLASS'N	FTE RFAC	FTE TFAC	GRAD ENROL
RC 1	1	7	28
RC 2	13	70	296
RC 3	3	24	48
RC 4	3	12	20
RC 5	1	6	8
	21	119	400

The research laboratory space need for this school is determined as follows:

NUMBER OF RESEARCHERS

	FTE RFAC	PCNT DOING RESCH		FTE TFAC	PCNT DOING RESCH		FTE GRAD	PCNT DOING RESCH		
RC 1 =	(1	x 100)	+	(7	x 20)	+	(28	x 10)	=	5.2
RC 2 =	(13	x 100)	+	(70	x 20)	+	(296	x 10)	=	56.6
RC 3 =	(3	x 100)	+	(24	x 20)	+	(48	x 10)	=	12.6
RC 4 =	(3	x 100)	+	(12	x 20)	+	(20	x 10)	=	7.4
RC 5 =	(1	x 100)	+	(6	x 20)	+	(8	x 10)	=	3.0

RESEARCH LAB SPACE NEED

	NUMBER OF RESEARCHERS		SQ FT PER RESEARCHER		
RC 1 =	5.2	x	0	=	0
RC 2 =	56.6	x	10	=	566
RC 3 =	12.6	x	80	=	1008
RC 4 =	7.4	x	240	=	1776
RC 5 =	3.0	x	400	=	1200

TOTAL = 4550 SQ FT

RESEARCH LABORATORIES - DATA APPROXIMATION METHODS

METHODS USED FOR APPROXIMATING THE DISTRIBUTIONS OF FACULTY AND GRADUATE STUDENT RESEARCH DATA

A. The proportions of research faculty and teaching faculty were approximated as follows:

1. For religion and theology schools, Catholic girls' colleges, and campuses where no graduate enrollments were projected, all faculty were assumed to be teaching related. These campuses were considered to be non-research oriented campuses.

2. For each of the remaining campuses, where graduate enrollments are projected, the division of the total faculty into research related faculty (RFAC) and teaching related faculty (TFAC) was determined by judgment after examination of student contact hours and other data gathered for the 1967 IFUS study.

B. The distributions of research program related faculty, teaching related faculty and graduate enrollments among the five research classifications were determined as follows:

1. For research faculty (RFAC), the projected distribution for each campus was approximated by considering its 1967 graduate enrollment distribution in dual and graduate level courses and the current emphasis of its existing research programs.

2. For teaching faculty (TFAC) and graduate students (GRAD), the projected distributions among the five research classifications were assumed to be the same as the 1967 distributions.

(a) For all schools except the state-supported regional campuses, the teaching faculty distribution was approximated by the distribution of total student contact hours while the graduate student distribution was approximated by enrollments in dual and graduate level courses.

(b) For the state-supported regional campuses, the distributions of both teaching faculty and graduate students were approximated by the distribution of each campus's total student contact hours since departmental breakdowns of their data were not provided.

O F F I C E S

ROOM TYPES INCLUDED

Office, office studio, conference, interview and office service.

GENERATING ELEMENT

Full-time-equivalent (FTE) staff requiring office space.

BASIC FORMULA

OFFICE SPACE NEED = FTE STAFF REQUIRING OFFICE × 140 SQ FT PER FTE STAFF

ASSUMPTIONS AND LIMITATIONS

(1) Office space is projected only for those FTE staff in academic-administrative departments who are employed by an institution and normally require office facilities. Technicians, custodians and other "service" personnel normally do not require office facilities. Fellowship holders, post-doctoral fellows and emeritus professors are excluded unless they are paid to perform a needed service for the institution.

(2) Office space for library staff is not generated in this part of the model but is projected as part of the library service needs.

(3) The number of projected FTE staff for each campus is a given input to this model. These data were independently developed in another portion of the Indiana Higher Education Comprehensive Facilities Planning Study (IHECFPS). The 1985 FTE staff per enrollment ratios for most schools varied from the 1967 values; therefore "status quo" conditions are not applicable to this portion of the model.

(4) Commons space is not projected in this category but is included with the General Use and Service Facilities projection. (See Appendix B, "Definitions of Room Classifications.")

RATIONALE

The total need for office facilities has been found to be related to the number of full-time-equivalent (FTE) staff requiring offices. The 1967 Indiana Facilities Utilization Survey revealed a statewide average of 141 square feet per FTE staff. This supports the commonly used planning factor of 140 square feet per FTE staff which is used in this model.

RATIONALE CONT'D

This factor incorporatas 115 to 125 square feet for actual office space and 15 to 25 square feet for office service, conference and interview space. While the factor represents a campus-wide average, individual office areas will vary according to their use and/or the function of the personnel assigned.

EXAMPLE

The office space need for a hypothetical campus with a total of 234 FTE academic-administrative staff, of which 20 FTE are in the library department and 10 FTE are service staff, is determined as follows:

FTE STAFF REQUIRING OFFICE	=	234 TOTAL FTE STAFF	-	30 LIBRARY AND SERVICE FTE	=	204

OFFICE SPACE NEED	=	204 FTE STAFF REQ OFFICE	x	140 SQ FT PER FTE

= 28,600 SQ FT

L I B R A R Y

ROOM TYPES INCLUDED

Study, stack, carrel, library processing, library service, exhibit and exhibit service.

GENERATING ELEMENTS

Number of bound volumes, FTE undergraduate and FTE graduate students, and FTE faculty.

BASIC FORMULA

LIBRARY SPACE NEED = SQ FT STACK + SQ FT STUDY + SQ FT SERVICE AND EXHIBIT

where

STACK = CURRENT VOLUMES HELD × GROWTH FACTOR TO PROJ YEAR × 0.1 SQ FT PER VOLUME,

(IF THE PROJECTED NUMBER OF VOLUMES IS LESS THAN 50,000, THEN SET VOLUMES EQUAL TO 50,000)

STUDY = LIBRARY USERS × PCT OF USERS SEATED × SQ FT PER STATION,

and

SERVICE AND EXHIBIT = SUM OF STACK & STUDY SQ FT × 25 PCT.

ASSUMPTIONS AND LIMITATIONS

(1) The rate of growth in volumes held is assumed to be independent of enrollment changes.

(2) Volumes for each campus will double by 1985, the projection year. This assumes a growth rate of 4 percent compounded annually.

(3) The total FTE students data were supplied by another portion of the IHCEPS. For the library projection, these students were distributed between undergraduate and graduate in the same proportion as the headcount enrollments.

RATIONALE

Many factors, some of which are not quantifiable, contribute to the quantity and quality of a library holding. While several methods for estimating future volume requirements can be located in the literature, it was found that most of these methods require considerably more detailed information than was available. As a simplified approach, therefore, clues were taken from two sources. First, the Standards for College Libraries adopted in 1959 by the Association of College and Research Libraries of the American Library Association, while placing primary emphasis on quality, provide that 50,000 "carefully chosen" volumes may serve as a minimum for the library of a college of up to 600 full-time-equivalent students. Second, studies by the American Association of Research Libraries of university collections indicate that large size libraries (500,000 volumes or more) grow at an annual rate of about 5 percent. This translates into a little more than doubling of the collection size within the projection period of this model. Based on these references, a volume growth factor of 2.0 to 1985 is established for all campuses. However, it is assumed that a minimum collection size of 50,000 will be attained.

The factor of 0.1 square feet per bound volume is used to determine the amount of stack space required. This value, which is frequently used in other studies, is slightly greater than Indiana's 1967 statewide average. In actual practice, it is somewhat lower for larger collections.

The amount of study space is related to the number of persons to be seated at one time. The literature usually cites 25 percent of the FTE undergraduates as an acceptable seating capacity, since not all students will require study facilities simultaneously. However, variations in this percentage can be expected depending upon the characteristics of the institution. Factors such as curricula, instructional methods, student mix with respect to both level of instruction and proportion of full-time students, available study space in other buildings, whether the campus is residential or commuter in character, and capital resources may all influence the decision concerning the amount of library seating to be provided.

In this model, study area is a function of undergraduate, graduate and faculty needs. The percent of FTE undergraduate students to be seated has been inversely related to the size of the institution. The 1967 IFUS data (as well as many other studies) show that small

RATIONALE CONT'D

colleges almost invariably seat greater percentages of their FTE students in the library study space than large schools and that 25 percent is rarely attained by large universities. While the reasons for the occurrence of these differences are obscure, the inclusion of this variation is considered to be a realistic approach. Therefore the percent of FTE undergraduate students to be seated is varied from 28 to 16 percent. The number of study stations for FTE graduate students is set at 25 percent and for FTE faculty at 5 percent, independent of campus size.

Seating at study tables normally requires approximately 25 square feet per station and this value is used for the undergraduate factor. The average area per station for graduate and faculty study was set at 35 to provide for various types of carrel facilities.

The projection factor for library service and exhibit space is taken directly from the 1967 IFUS data. The statewide average of this space as a percent of stack and study areas was approximately 25 percent (18 percent office and processing and 7 percent exhibit). This assumes that all processing for the library is done on the campus. Schools that have processing done elsewhere should be able to operate with less service area.

LIBRARY - SUMMARY

BASIC FORMULA

LIBRARY SPACE NEED = SQ FT STACK + SQ FT STUDY + SQ FT SERVICE AND EXHIBIT

where

STACK = CURRENT VOLUMES HELD × GROWTH FACTOR TO PROJ YEAR × 0.1 SQ FT PER VOLUME,

(IF THE PROJECTED NUMBER OF VOLUMES IS LESS THAN 50,000, THEN SET VOLUMES EQUAL TO 50,000)

STUDY = LIBRARY USERS × PCT OF USERS SEATED × SQ FT PER STATION,

and

SERVICE AND EXHIBIT = SUM OF STACK & STUDY SQ FT × 25 PCT.

TABLE OF VALUES

TOTAL FTE STUDENTS	PCT USERS SEATED			SQ FT/STATION		
	UG	GRAD	FAC	UG	GRAD	FAC
0- 999	28	25	5	25	35	35
1,000-2,999	24	25	5	25	35	35
3,000-9,999	20	25	5	25	35	35
10,000 & UP	16	25	5	25	35	35

EXAMPLE

The library space need for a hypothetical institution with 1680 FTE undergraduate students, 320 FTE graduates and 140 FTE faculty members projected and with a current size of 80,000 volumes is determined as follows:

STACK SPACE	=	80,000 CURRENT VOLUMES	x	2.0 VOL GROWTH FACTOR (1967-85)	x	0.1 SQ FT PER VOLUME	=	16,000 SQ FT
STUDY SPACE	=	1680 FTE UNDERGRAD	x	24 PCT UNDERGRAD	x	25 SQ FT PER STA	=	10,080 SQ FT
	+	320 FTE GRAD ENROL	x	25 PCT GRADS SEATED	x	35 SQ FT PER STA	=	2800 SQ FT
	+	140 FTE FACULTY	x	5 PCT FACULTY SEATED	x	35 SQ FT PER STA	=	245 SQ FT

= 13,125 SQ FT STUDY SPACE

SERVICE SPACE	=	29,125 SQ FT STACK AND STUDY	x	25 PCT	=	7281 SQ FT

TOTAL LIBRARY SPACE	=	16,000 STACK	+	13,125 STUDY	+	7281 SERVICE

= <u>36,400 SQ FT</u>

OTHER ACADEMIC FACILITIES

ROOM TYPES INCLUDED

All room types included in the following broad space categories: Other areas, Medical care facilities and Residential facilities. (See Appendix B.)

GENERATING ELEMENT

The total of classroom, teaching lab, self study and teaching clinic, gym, armory and demonstration school, research lab, office and library areas in academic-administrative departments. For simplicity, this area is termed, "sub-total-1".

BASIC FORMULA

OTHER ACADEMIC FACILITIES SPACE NEED = SUB TOTAL-1 SQ FT x 3.5 PERCENT

ASSUMPTIONS AND LIMITATIONS

(1) Only that portion of the total campus medical care, residential and other facilities which is found in academic-administrative departments is included.

RATIONALE

Most of the room types included in the other academic facilities category are not normally associated with academic-administrative departments. Those few which are, however, each account for a relatively small amount of space and are therefore projected as a group.

Much of the space in this projection category falls in the unclassified and remodeling classifications. A projection of area for these room types recognizes the fact that a small portion of space is generally found on any campus which is unavailable for active use, under reassignment and/or being remodeled.

The participating schools in the 1967 IFUS study reported amounts of this space varying from 0 to 25 percent. Since no relationship with other variables could be determined, the Indiana statewide weighted average of 3.5 percent is used as the projection factor.

A separate "add-on" calculation was made for veterinary animal rooms for two schools which reported having such facilities in the 1967 IFUS report. This calculation assumes that this type of facility will expand in proportion to the faculty growth in those departments which require veterinary animal rooms.

EXAMPLE

The other academic facilities space need for a hypothetical institution with 126,200 subtotal-1 square feet is determined as follows:

SUB TOTAL-1 ACAD-ADMIN SQ FT = 26,400 CLASSRM SQ FT + 15,900 TCHG LAB SQ FT + 2,200 SELF STY SQ FT

+ 10,600 GYM SQ FT + 1,500 DEM SCHL SQ FT + 4,600 RES LAB SQ FT

+ 28,600 OFFICE SQ FT + 36,400 LIBRARY SQ FT = 126,200 SQ FT

OTHER ACADEMIC SPACE NEED = 126,200 SUB TOTAL-1 ACAD- ADMIN SQ FT × 0.035

= 4,400 SQ FT

GENERAL USE AND SERVICE FACILITIES

ROOM TYPES INCLUDED

Auditorium, chapel, lounge, commons, recreation, union, student activities, cafeteria, and associated service areas.

GENERATING ELEMENTS

Full-time-equivalent (FTE) students plus FTE staff.

BASIC FORMULA

GEN USE AND SERVICE SPACE NEED = AUDIT, CHAPEL SQ FT + LOUNGE, COMMONS, ETC. SQ FT

where

AUDIT, CHAPEL SQ FT = FTE STUDENTS × PERCENT SEATED × SQ FT PER STATION × PCT OF AREA ASSIGNED TO ACAD-ADMIN DEPTS

LOUNGE, COMMONS, ETC. SQ FT = FTE STUDENTS PLUS FTE STAFF × 2.3 SQ FT PER FTE STUDENT OR STAFF

ASSUMPTIONS AND LIMITATIONS

(1) General use space is normally a function of campus-wide need. However, only that portion of the general use facilities found in academic-administrative departments is projected. General use facilities for residential and supplementary departments, such as student unions, are not projected in this model.

(2) The number of projected FTE students and FTE staff for each campus is a given input to this model. These data were developed independently in another portion of the IHECFPS. The 1985 FTE staff per enrollment ratios for most schools varied from the 1967 values; therefore "status quo" conditions are not applicable to this portion of the model.

RATIONALE

The room types included under the general use and service facilities heading have been divided into two parts for projection purposes. Part one includes the auditorium and chapel room types while part two covers the remaining room types.

RATIONALE CONT'D

Auditorium and chapel space generally is used to meet the needs of activities such as theatre presentations, general meetings and convocations. However, only a portion of the campus population might be expected to participate in any single event.

Analysis of the data gathered for the 1967 IFUS study indicated a generally inverse relationship between FTE students and the percentage which could be seated in auditorium and chapel facilities. Several of the smaller institutions had capacity for more than 100 percent of their FTE students, while the largest institutions did not exceed 50 percent. To reflect this relationship, the seating factor for small schools (less than 1,000 FTE) was chosen to be 115 percent, while for large schools (20,000 FTE or above) 40 percent was used. For schools between these limits, a straight line relationship was applied, which resulted in a 3.95 percentage point decrease for every 1000 FTE students. Of course, on all but the smallest campuses, the total seating may be spread among more than one facility.

The 1967 statewide average of 13.8 square feet per station (including service areas) is set as a reasonable planning factor for all institutions. Only minor deviations from this average were found statewide.

The percent of auditorium and chapel space which was assigned to academic-administrative departments in the 1967 IFUS report was used for the 1985 projection. This value is assumed to represent each school's policy on the share of this space committed to academic-administrative functions.

The major portion of the remaining general use and service space in academic-administrative departments consists of lounge and commons areas. These room types are often provided within the academic environment to serve the informal communication needs of students and faculty. The amount of space to be projected is considered to be directly related to FTE students and FTE staff. The statewide average of 2.3 square feet per user was selected as the projection factor.

It should again be emphasized that the greatest portion of general use space, particularly recreation, union and student activities space, is normally found in supplementary departments which are not projected in this academic-administrative model.

GENERAL USE AND SERVICE FACILITIES - SUMMARY

COMPLETE FORMULA

GEN USE AND SERVICE SPACE NEED = AUDIT, CHAPEL SQ FT + LOUNGE, COMMONS, ETC. SQ FT

where

AUDIT, CHAPEL SQ FT = FTE STU-DENTS × PERCENT SEATED × SQ FT PER STATION × PCT OF AREA ASSIGNED TO ACAD-ADMIN DEPTS

PERCENT SEATED IS CALCULATED AS FOLLOWS:

FTE STUDENTS	PERCENT SEATED
0 - 999	115
1,000 - 20,000	115 - 0.00395 (FTE STU - 1000)
20,001 +	40

LOUNGE, COMMONS, ETC. SQ FT = FTE STU-DENTS PLUS FTE STAFF × 2.3 SQ FT PER FTE STUDENT OR STAFF

EXAMPLE

A hypothetical institution with 2000 FTE students and 234 FTE staff and having 20 percent of its auditorium space in academic-administrative departments would generate general use space as follows:

AUDIT, CHAPEL SPACE NEED = 2000 FTE STUDENTS × 111 PCT SEATED × 13.8 SQ FT PER STATION × 20 PCT ACAD-ADMIN

= 6127 SQ FT

COMMONS, LOUNGE, ETC. SPACE NEED = 2234 FTE STUDENTS AND STAFF × 2.3 SQ FT PER USER = 5140 SQ FT

TOTAL GENERAL USE SPACE NEED = 6127 SQ FT + 5140 SQ FT = 11,300 SQ FT

SUPPORT FACILITIES

ROOM TYPES INCLUDED

Storage, communications media, vehicle storage, shop, data processing, laundry, warehouse, food storage, and the associated service areas.

GENERATING ELEMENT

The total of all other room type areas in academic-administrative departments (Subtotal-1 + other academic + general use and service facilities). For simplicity, this area is termed, "Subtotal-2".

ASSUMPTIONS AND LIMITATIONS

(1) Only that portion of the support facilities assigned to academic-administrative departments is included in this projection.

(2) Support facilities are assumed to be directly related to the total area served.

RATIONALE

Support facilities are primarily those spaces needed for the maintenance of buildings and equipment and for various storage purposes. For most campuses participating in the 1967 IFUS study, the major portion of the support facilities in academic-administrative departments consists of storage related areas. The amount of such areas shows little relationship to headcount or FTE students, or to campus gross area. The total support space, therefore, also varies widely and no concrete relationship with other factors could be determined. The statewide weighted average of support space as a percent of all other academic-administrative area, 10.1 percent, is therefore used as a projection factor.

EXAMPLE

The support facilities required for a hypothetical institution with 141,800 subtotal-2 square feet is calculated as follows:

SUBTOTAL-2 ACAD-ADMIN SPACE	=	126,200 SUBTOTAL-1 SQ FT	+	4,400 OTHER ACAD SQ FT	+	11,200 GEN USE SQ FT = 141,800
SUPPORT FACILITIES SPACE NEED	=	141,900 SUBTOTAL-2 ACAD-ADMIN SQ FT	×	10.1 PERCENT		
	=	14,300 SQ FT				

SUMMARY OF SPACE REQUIREMENTS CALCULATIONS FOR A HYPOTHETICAL INSTITUTION

Table I on the following two pages summarizes the basic calculations used to determine the projected space requirements by functional space category for a hypothetical institution. The rationale, mechanics and additional supplementary calculations used for projecting each category were described in the preceding pages.

The second column of the table indicates the generating element or function used for each category. These elements are the units which create the demand for each category. In column three are found the space requirements factors which were considered appropriate for the hypothetical campus. It should be remembered that for some space categories these factors will change from campus to campus since they have been made a function of other parameters, e.g., measures of instructional activity or FTE students. Therefore, the space requirement factors shown on Table I are not simply those used for every Indiana campus in the actual projection calculations but merely a list of those used for the hypothetical institution. To determine a space requirements factor for a given space category at a given campus, it is necessary to refer to the detailed methodology described in the earlier part of this chapter.

TABLE I
INDIANA HIGHER EDUCATION FACILITIES COMPREHENSIVE PLANNING STUDY - SEPTEMBER, 1967

SUMMARY OF SPACE REQUIREMENT CALCULATIONS FOR A HYPOTHETICAL INSTITUTION

SPACE CATEGORY	GENERATING ELEMENT OR FUNCTION	SPACE REQT FACTOR		TOTAL SF REQD
A CLASSROOM	(13.5 NON LAB SCH/ENROL)(2,500 TOTAL ENROL)	0.78	SF/SCH	26,400
B TEACHING LAB	(2.1 LAB SCH/ENROL)(2,500 TOTAL ENROL)	3.02	SF/SCH	15,900
C SELF STY+TCHG CLIN				
1 MUSIC PRAC	(0.4 MUS PRAC HR/ENROL)(2,500 TOTAL ENROL)	1.2	SF/MPH	1,200
2 OTHR IND STUDY	(0.2 OTHR I S HR/ENROL)(2,500 TOTAL ENROL)	2.0	SF/ISH	1,000
TOTAL C				2,200
D GYMNASIUM	(0.5 GYM SCH/UG ENROL)(2,100 UG ENROL)	10.1	SF/SCH	10,600
E DEM SCHOOL+ARMORY	(1,500 SQFT INVENTORY '67)	NO CHANGE		1,500
F RESEARCH LAB				
RES CLASSN 1	(5.2 NO. OF RESEARCHERS)	0	SF/RES	0
RES CLASSN 2	(56.6 NO. OF RESEARCHERS)	10	SF/RES	566
RES CLASSN 3	(12.6 NO. OF RESEARCHERS)	80	SF/RES	1,008
RES CLASSN 4	(7.4 NO. OF RESEARCHERS)	240	SF/RES	1,776
RES CLASSN 5	(3.0 NO. OF RESEARCHERS)	400	SF/RES	1,200
TOTAL F				4,600
G OFFICE	(204 FTE STAFF GEN OFF)	140	SF/FTE	28,600
H LIBRARY				
1 STACKS	(80,000 VOLUMES)(2.0 GROWTH FACTR)	0.1	SF/VOL	16,000
2 STUDY (A)	(24 PCT FTE UG SEATED)(1,680 FTE UNDERGRD)	25	SF/STA	10,080
(B)	(25 PCT GRAD SEATED)(320 GRAD ENROL)	35	SF/STA	2,800
(C)	(5 PCT FACULTY SEATED)(140 FTE FACULTY)	35	SF/STA	245
3 SUB TOTAL				29,125
4 SERVICE	(29,125 STACK + STUDY SQFT)	25	PCTSER	7,281
TOTAL H				36,400
I SUB TOTAL A-H				126,200

J OTHER ACADEMIC					
I MISCELLANEOUS	(126,200 SUB TOTAL-I SQ FT)				
2 VET ANIML RMS	(PCT FAC ANRMS RELD)(TOTL FTE FAC)		3.5	PCTMIS	4,400
				SF/FTE	0
TOTAL J					4,400
K GEN USE + SERV					
I AUD + CHAPEL	(111 PCT FTE STU SEATED)(2,000 FTE STU)(20 PCT AC-AD)		13.8	SF/STA	6,127
2 REC,LOUNGE,ETC	(2,234 FTE STAF+FTE STU)		2.3	SF/GEN	5,140
TOTAL K					11,300
L SUB TOTAL A-K					141,900
M SUPPORT	(141,900 SUB TOTAL L SQ FT)		10.1	PCTSUP	14,300
L GRAND TOTAL REQT					156,200

CHAPTER III. STATEWIDE ACADEMIC-ADMINISTRATIVE SPACE REQUIREMENTS

INTRODUCTION

By 1985, over 310,000 students are expected to be attending Indiana colleges and universities as compared to about 160,000 registered students in 1967. In the face of such an increase, two questions immediately come to mind: "What total amount and kinds of space will be required to meet the need generated by these students?" and more significantly, "What are the most critical areas where additional space will be required?"

The answer to the first question was obtained by utilizing the projection model described in the previous chapter, applying unique parameters for each institution, and aggregating the resultant individual campus requirements. The answer to the second question was determined by combining the projection results with the inventory data gathered for the 1967 Indiana Facilities Utilization Survey.

In order to help clarify the meaning and discussion of the data which result from this combination, the calculation, terms and assumptions used are as follows:

(1) The basic calculation to determine the need for additional facilities for a specific space category at a given campus is:

PROJECTED REQUIREMENT	-	USEABLE INVENTORY	=	ADDITIONAL NEED	, if a positive value,
			or =	EXCESS SPACE	, if a negative value.

(2) The projected requirement in this equation is the space required in the projection year as determined from the space

projection model. This value is independent of the amount or condition of existing facilities, if any. The sum of the projected requirements for all space categories is the total projected requirement for a campus. Likewise, the sum of the total projected requirements for a number of campuses is the total projected requirement for a campus group.

(3) Useable inventory refers to the portion of the 1967 inventory which was not classified as demolish, i.e., total inventory less demolish inventory.

(4) Additional need is the amount of new facilities needed beyond the existing useable inventory which is necessary to meet the projected requirements. For a given space category it may be considered to consist of a combination of two parts: (1) the portion necessary to accommodate an increase in demand, and (2) the space needed to replace facilities to be demolished. The total additional need for a campus is the sum of the areas for only those space categories with positive differences as determined from the formula above. The total additional need for a group of campuses is the sum of the total additional needs for all campuses in that group.

(5) Excess space occurs, as indicated above, if the useable inventory is greater than the projected requirement for a given space category. In a sense, this space represents capacity in excess of the projected demands. Total excess space for a campus or a group of campuses is calculated in an analogous manner to total additional need. However, the initial summing is done

for only those space categories with negative differences as determined from the formula above.

(6) Non-convertibility of space was the first of two assumptions used in determining the total additional need for a single campus and also for a group of campuses. It assumes that the excess area of one space category will or cannot be converted to meet the needs of another space category within a campus. This assumption is used since many times it is impractical to convert facilities from one category to another (e.g. teaching laboratories to gymnasium) and because it is impossible to tell a priori which space excesses can be used to reduce the needs of other space categories. Thus, for a given campus the sum of the areas for space categories with positive differences, from the formula above, is the total additional need for new facilities as indicated earlier. Similarly, the sum of the negative differences is the total excess space. A campus may have both a need for additional space and excess space at the same time since, it must be remembered, that the two figures refer to two different sets of space categories.

(7) Non-mobility of space, the second assumption, refers to precluding the relocation of excess facilities from one campus to satisfy the need for additional space which might occur on another campus. Since most campuses are not contiguous, this was considered a necessary approach. Thus, a campus group may also indicate a need for new facilities and have excess space at the same time.

The additional need index is a value which appears on later data tables. It is the ratio of additional need, calculated as indicated above, over useable inventory and may be thought of (1) as the number of square feet of new facilities which must be constructed for every square foot of useable inventory on hand in 1967, or (2), as the percentage increase (if the index is multiplied by 100) of new space which must be added over and above 1967 existing useable inventory.

All areas referred to in the discussion and tables which follow are expressed in terms of net assignable square feet. Gross square footage, which also includes public rest rooms and mechanical, circulatory and construction areas, may be approximated by multiplying net assignable area by a factor of 1.67. This calculation assumes that the ratio of assignable square feet to gross square feet is an average of 60 percent.

As a final introductory comment, the reader is again urged, in studying the results of this paper, to carefully review the definitions of input variables and functional space categories before attempting to make comparisons with the results of similar studies or before drawing any conclusions concerning relative needs among states. Important definitional differences exist which, in some instances, prohibit making a simple casual comparison.

ANALYSIS OF TOTAL SPACE REQUIREMENTS AND ADDITIONAL SPACE NEEDS

Using the assumptions noted in the model development section, almost 20 million assignable square feet are projected as the total statewide academic-administrative space required to meet the needs of 310,000 enrollments expected by the year 1985 (Tables 2 and 3). This amount represents only a 54 percent increase over the 1967 statewide inventory in comparison to the 94 percent enrollment increase expected over the same period.

TABLE 2 - NUMBER AND PERCENTAGE DISTRIBUTION OF 1967 AND 1985 HEADCOUNT ENROLLMENTS FOR INDIANA COLLEGES AND UNIVERSITIES BY CAMPUS GROUP

CAMPUS GROUP	1967 ENROLLMENT NUMBER	% DISTN	1985 ENROLLMENT NUMBER	% DISTN	PERCENT CHANGE
STATE UNIVERSITIES	80,661	50.3	146,060	47.0	81
REGIONAL CAMPUSES	28,133	17.6	95,240	30.6	239
PRIVATE UNIVERSITIES	21,407	13.4	29,100	9.4	36
PRIVATE COLLEGES-1	17,825	11.1	25,140	8.0	41
PRIVATE COLLEGES-2	3,712	2.3	4,550	1.5	23
CATHOLIC GIRLS SCHOOLS	3,783	2.4	5,780	1.9	53
ENGR & TECH SCHOOLS	3,947	2.5	4,350	1.4	10
RELIG & THEOL SCHOOLS	682	0.4	740	0.2	9
STATEWIDE	160,150	100.0	310,960	100.0	94

While it is thus obvious that improved utilization has been projected, it should be noted that this projection is based on an enrollment estimate which is slightly less than the peak expected in 1982. Therefore, the maximum space requirements may occur before 1985.

To meet these requirements, about 8.7 million assignable square feet of new facilities will be needed over and above the 11 million square feet of space existing in 1967, of which about 2.2 million square feet need to be remodeled or altered. These additional space needs together with the remodeling and alteration requirements may represent more than a half-billion

dollar capital commitment which must be made within the next decade. Moreover, it should be kept in mind that this figure does not include additional outlays for utility systems which would be necessary to support the new facilities as well as those funds which might be required for land acquisition; facilities to support supplementary functions, such as student unions; or for residence halls. On the other hand, capital funds which were available and facilities which were under construction at the time of the 1967 inventory would serve to reduce the total capital funds required.

Of the 8.7 million square feet of new space needed by 1985, the state universities will require slightly more than 50 percent (4.6 million SF), regional campuses about 30 percent (2.7 million SF), while the remaining 1.5 million square feet or 17 percent will be needed by the other campus groups (Table 3).

TABLE 3 - ASSIGNABLE SQUARE FEET AND PERCENTAGE DISTRIBUTION OF TOTAL SPACE REQUIRED AND ADDITIONAL SPACE NEEDED BY 1985 FOR INDIANA COLLEGES AND UNIVERSITIES BY CAMPUS GROUP

CAMPUS GROUP	TOTAL SPACE REQRD ASSIGN SF	TOTAL SPACE REQRD PCT DISTN	ADD'L SPACE NEED ASSIGN SF	ADD'L SPACE NEED PCT DISTN	1967-85 PCT INCREASE ENROL	1967-85 PCT INCREASE ADD'L SPACE OVER 1967 USEABLE INV
STATE UNIV	10,861,800	55.7	4,595,000	52.5	81	73
REGL CAMP	3,429,400	17.6	2,676,000	30.6	239	353
PRIV UNIV	2,026,000	10.3	576,000	6.6	36	34
PRIV COL-1	1,954,100	10.0	536,100	6.1	41	32
PRIV COL-2	361,700	1.9	100,600	1.2	23	30
CATH GIRLS	408,700	2.1	115,100	1.3	53	31
ENGR/TECH	385,000	2.0	122,800	1.4	10	35
RELIG/THEOL	86,100	.4	22,100	0.3	9	16
STATEWIDE	19,512,800	100.0	8,744,600	100.0	94	75

Because of their large projected enrollment increase, regional campuses display by far the greatest need for new facilities relative to their 1967 useable inventory. Their useable inventory must be increased by more than 350 percent (Table 3). The state universities require better than a 70 percent

increase, while most of the privately supported campus groups will need about a 30 percent increase.

It should be noted that it was assumed that the proportion of part-time students at the regional campuses would remain unchanged from 1967. If a greater proportion of the enrollments at these campuses do in fact become full-time, then their need for new facilities would increase significantly -- perhaps by as much as 30-50 percent or to a total of 3.5 to 4.0 million square feet.

Statewide, the two largest needs for new facilities by space category are office (1.8 million square feet) and library (1.6 million square feet). These two space categories account for 22 and 19 percent respectively of the total new facilities needed while classrooms and teaching laboratories together comprise only about 18 percent. General use and service facilities have the greatest need relative to their 1967 useable inventory (Table 4).

The need for new facilities comes from the necessity to meet increased demand and also to replace existing facilities which are beyond rehabilitation and are scheduled to be demolished before 1985. About 11 percent (or 1 million square feet) of the new area needed statewide is to replace such facilities. The replacement of demolish inventory accounts for up to 15 percent of the additional need for any campus group (Table 4). As pointed out in the 1967 Indiana Facilities Utilization Survey (IFUS) many campus representatives may have been conservative in their judgment of the quality of their buildings. Consequently, even greater amounts of space than indicated here may require replacement before 1985.

As noted in the introduction to this section, it is possible for a campus group to show both a need for new facilities and, at the same time, have excess space due to the assumptions that excess space of one space category could not be converted to other space categories within a campus

TABLE 4
INDIANA HIGHER EDUCATION COMPREHENSIVE FACILITIES PLANNING STUDY - SEPTEMBER, 1967

SUMMARY OF STATEWIDE ACADEMIC-ADMINISTRATIVE SPACE REQUIREMENTS FOR 1985

	ASSIGN SF PROJECTED REQUIREM'T	ASSIGN SQ FT AND PCT OF NEW FACILITIES NEEDED TO REPLACE DEMOLISH INV	PCT	+ TO MEET PROJ REQT	PCT	= TOTAL ADDL NEED	ADDL NEED INDEX[a]	ASSIGN SF OF EXIST'G FACIL NEEDING TO BE REMODELED	ALTERED
CAMPUS GROUPS									
REGIONAL CAMPUSES	3,429,400	140,300	5	2,535,700	95	2,676,000	3.53		14,294
STATE UNIVERSITIES	10,861,800	708,700	15	3,887,200	85	4,595,900	.73	862,472	477,657
ENGR + TECH SCHOOLS	385,000	15,500	13	107,300	87	122,800	.35	87,579	33,374
PRIVATE UNIVERSITIES	2,026,000	36,200	6	539,800	94	576,000	.34	178,046	60,701
PRIVATE COLLEGES - 1	1,954,100	33,900	6	502,200	94	536,100	.32	331,014	88,269
CATHOLIC GIRLS SCHLS	408,700	15,500	13	99,600	87	115,100	.31	4,344	12,159
PRIVATE COLLEGES - 2	361,700	11,000	11	89,600	89	100,600	.30	31,799	58,052
RELIGION+THEOL SCHLS	86,100			22,100	100	22,100	.16		1,509
ALL CAMPUSES	19,512,800	961,100	11	7,783,500	89	8,744,600	.75	1,495,254	746,015
SPACE TYPE									
GEN USE + SERVICE	1,721,200	56,800	5	1,029,200	95	1,086,000	1.52		
SUPPORT	1,790,000	240,600	25	703,100	75	943,700	1.04		
LIBRARY	3,210,100	46,600	4	1,599,300	96	1,645,900	1.01		
SELF STY+TCHG CLINIC	179,300	17,000	18	78,800	82	95,800	.96		
RESEARCH LAB	1,923,600	56,000	6	902,400	94	958,400	.94		
OFFICE	4,059,600	274,600	15	1,614,600	85	1,889,200	.84		
OTHER ACADEMIC	592,200	19,500	7	263,100	93	282,600	.80		
CLASSROOM	2,303,900	93,700	14	669,500	86	763,200	.47		
TEACHING LAB	2,412,700	113,000	14	687,900	86	800,900	.44		
GYMNASIUM	1,003,400	21,100	8	235,600	92	256,700	.28		
DEM SCHOOL+ARMORY	316,700	22,200	100			22,200	.08		
ALL SPACE TYPES	19,512,800	961,100	11	7,783,500	89	8,744,600	.75		

[a]ADDL NEED INDEX = TOTAL ADDL NEED/1967 USEABLE INVENTORY

and could not be moved from one campus to meet the need of another campus. Statewide, there was a total of 873,700 square feet of excess space resulting from these assumptions (refer to Table 6, page 59). If the assumption of non-convertibility could be completely relaxed, i.e., if facilities were assumed to be readily transformed from one space category to another, then the additional space that would be needed is reduced by about seven percent statewide (Table 5).

TABLE 5 - COMPARISON OF ADDITIONAL SPACE NEEDS BY 1985 WITH AND WITHOUT THE NON-CONVERTIBILITY OF SPACE ASSUMPTION FOR INDIANA COLLEGES AND UNIVERSITIES BY CAMPUS GROUP

CAMPUS GROUP	ADDL NEED ASSUMING NON-CONV AND NON-MOBILITY SQUARE FT	ADDL NEED ASSUMING NON-MOBILITY ONLY SQUARE FT	DECREASE SQUARE FT	DECREASE PCT
RELIG/THEOL	22,100	0	22,100	100
ENGR/TECH	122,800	57,500	65,300	53
PRIVATE UNIV.	576,000	339,600	236,400	41
CATH GIRLS	115,100	69,100	46,000	40
PRIV COL-1	536,100	347,100	189,000	35
PRIV COL-2	100,600	72,500	28,100	28
STATE UNIV	4,595,900	4,564,100	31,800	7
REGL CAMP	2,676,000	2,671,100	4,900	
STATEWIDE	8,744,600	8,121,000	623,600	7

Thus, a maximum of 623,600 square feet of the total 873,700 square feet of excess space could theoretically be substituted for new facilities by conversion, at additional costs, to the space types for which there is an additional need. (If complete convertibility were assumed, twelve of the privately supported schools had more than enough space in the 1967 inventory to meet their 1985 space requirements while most of the other private campuses could also meet a large portion of their additional needs.)

However, such a conversion many times is impractical. Therefore the assumption of non-convertibility was judged to provide more reasonable aggregate results.

SPECIFIC NEEDS BY CAMPUS GROUP

Tables 6-15 on the following pages describe the space needs for each campus group by functional category. Table 16 shows the basic inventory data for each group.

The greatest absolute needs are generally in the office and library space categories. Over 292,000 square feet of the office space needs are generated because of existing facilities which are to be demolished before 1985. Using the factor of 140 square feet per staff member, this means that over 2,000 staff members are officed in facilities that should be replaced. The state universities and regional campuses show the greatest absolute need for office facilities while most private institutions need only modest increases in office space. All campus groups except regional campuses show library space as one of their largest absolute needs.

For most of the school groups, the classroom and teaching laboratory categories generally require increases of less than 50 percent. (However, there was excess teaching laboratory space for 23 of the 43 campuses.)

The regional campuses generated the highest additional need index for almost every category of space while the religion and theology schools generated the lowest overall additional need index, with excess space occurring in many of their space categories. Much of this excess can be attributed to the relatively small growth projected for this group.

On Tables 6-14 which follow, primary attention should be directed to the third data column which shows the additional space needs calculated as described earlier. The fourth column indicates the amount of excess space while the fifth data column was included primarily as a final check on the arithmetic of the calculations. (In effect, the fifth column shows the amount of space that would be needed if it were assumed, unrealistically, that space could be moved from one campus to another or easily converted from one space category to another if necessary.) The sixth data column was determined by dividing the actual 1967 total inventory, including space classified as demolish, by the 1967 enrollments. The next column was determined by dividing the projected requirement for 1985, from the first data column, by the 1985 estimated total enrollments shown in the heading of each table.

TABLE 6

INDIANA HIGHER EDUCATION FACILITIES COMPREHENSIVE PLANNING STUDY - SEPTEMBER, 1967

SUMMARY OF ACADEMIC-ADMINISTRATIVE SPACE NEEDS
FOR 245,540 UNDERGRADUATES, 64,420 GRADUATES, 310,960 TOTAL ENROLLMENT IN 1985

ALL CAMPUSES STATEWIDE

TYPE OF SPACE	ASSIGNABLE SQUARE FEET					AREA/ENROL		ADD'L NEED INDEX *
	PROJECTED REQ'T FOR YEAR 1985	- 1967 INVENTORY EXCL INVEN. IN DEMOLISH CAT'Y	= ACCUMULATED TOTALS FOR SCHOOLS WITH ADDIT'L NEED	SCHOOLS WITH EXCESS SPACE	= NET NEED ASSUMING SPACE MOBILITY AMONG SCHOOLS	ACTUAL 1967	PROJ 1985	
A CLASSROOMS	2,303,900	1,622,500	763,200	- 81,800	681,400	11.0	7.4	.47
B TEACHING LABS	2,412,700	1,836,700	800,900	-224,900	576,000	12.3	7.8	.44
C SELF STY+T CLINIC	179,300	99,300	95,800	- 15,800	80,000	.7	.6	.96
D GYMNASIUM	1,003,400	928,600	256,700	-181,900	74,800	6.0	3.2	.28
E DEM SCHOOL+ARM'Y	316,700	294,500	22,200		22,200	2.0	1.0	.08
F RESEARCH LAB	1,923,600	1,014,800	958,400	- 49,600	908,800	6.7	6.2	.94
G OFFICE	4,059,600	2,241,000	1,889,200	- 70,600	1,818,600	15.8	13.1	.84
H LIBRARY	3,210,100	1,625,800	1,645,900	- 61,600	1,584,300	10.4	10.3	1.01
I SUB-TOTAL A-H	15,409,300	9,663,200	6,432,300	-686,200	5,746,100	64.9	49.6	.67
J OTHER ACADEMIC	592,200	353,900	282,600	- 44,300	238,300	2.4	1.9	.80
K GEN USE + SERV	1,721,200	714,900	1,086,000	- 79,700	1,006,300	4.8	5.5	1.52
L SUB-TOTAL A-K	17,722,700	10,732,000	7,800,900	-810,200	6,990,700			
M SUPPORT	1,790,100	909,900	943,700	- 63,500	880,200	7.4	5.8	1.04
N GRAND TOTAL	19,512,800	11,641,900	8,744,600	-873,700	7,870,900	79.5	62.8	.75

* ADD'L NEED INDEX = (ACCUM'D TOTAL FOR SCHOOLS WITH ADDIT'L NEED)/(1967 INVENTORY EXCL INVEN'Y IN DEMOLISH CATEGORY)

STATEWIDE NEEDS SUMMARY

TABLE 7

INDIANA HIGHER EDUCATION FACILITIES COMPREHENSIVE PLANNING STUDY - SEPTEMBER, 1967

SUMMARY OF ACADEMIC-ADMINISTRATIVE SPACE NEEDS
FOR 110,240 UNDERGRADUATES, 34,820 GRADUATES, 146,060 TOTAL ENROLLMENT IN 1985

STATE UNIVERSITIES

TYPE OF SPACE	ASSIGNABLE SQUARE FEET					AREA/ENROL		ADD'L NEED INDEX *
	PROJECTED REQ'T FOR YEAR 1985	- 1967 INVENTORY EXCL INVEN. IN DEMOLISH CAT'Y	= ACCUMULATED TOTALS FOR SCHOOLS WITH ADDIT'L NEED	SCHOOLS WITH EXCESS SPACE	= NET NEED ASSUMING SPACE MOBILITY AMONG SCHOOLS	ACTUAL 1967	PROJ 1985	
A CLASSROOMS	1,075,800	696,800	379,000		379,000	9.0	7.4	.54
B TEACHING LABS	1,369,200	934,000	446,600	-11,400	435,200	12.6	9.4	.48
C SELF STY+T CLINIC	111,400	45,500	65,900		65,900	.7	.8	1.45
D GYMNASIUM	639,700	459,900	179,800		179,800	5.8	4.4	.39
E DEM SCHOOL+ARM'Y	294,100	279,300	14,800		14,800	3.6	2.0	.53
F RESEARCH LAB	1,489,200	851,800	637,400		637,400	11.2	10.2	.75
G OFFICE	2,425,000	1,404,200	1,020,800		1,020,800	20.1	16.6	.73
H LIBRARY	1,548,300	673,000	875,300		875,300	8.6	10.6	1.30
I SUB-TOTAL A-H	8,952,700	5,344,500	3,619,600	-11,400	3,608,200	71.7	61.3	.68
J OTHER ACADEMIC	366,300	244,200	138,000	-15,900	122,100	3.3	2.5	.57
K GEN USE + SERV	546,300	166,300	380,000		380,000	2.5	3.7	2.29
L SUB-TOTAL A-K	9,865,300	5,755,000	4,137,600	-27,300	4,110,300			
M SUPPORT	996,500	542,700	458,300	- 4,500	453,800	9.7	6.8	.84
N GRAND TOTAL	10,861,800	6,297,700	4,595,900	-31,800	4,564,100	87.2	74.4	.73

* ADD'L NEED INDEX = (ACCUM'D TOTAL FOR SCHOOLS WITH ADDIT'L NEED)/(1967 INVENTORY EXCL INVEN'Y IN DEMOLISH CATEGORY)

STATE UNIVERSITIES NEEDS SUMMARY

TABLE 8

INDIANA HIGHER EDUCATION FACILITIES COMPREHENSIVE PLANNING STUDY - SEPTEMBER, 1967

SUMMARY OF ACADEMIC-ADMINISTRATIVE SPACE NEEDS
FOR 73,640 UNDERGRADUATES, 21,600 GRADUATES, 95,240 TOTAL ENROLLMENT IN 1985

REGIONAL CAMPUSES

TYPE OF SPACE	ASSIGNABLE SQUARE FEET					AREA/ENROL		ADD'L NEED INDEX *
	PROJECTED REQ'T FOR YEAR 1985	- 1967 INVENTORY EXCL INVEN. IN DEMOLISH CAT'Y	= ACCUMULATED TOTALS FOR SCHOOLS WITH ADDIT'L NEED	SCHOOLS WITH EXCESS SPACE	= NET NEED ASSUMING SPACE MOBILITY AMONG SCHOOLS	ACTUAL 1967	PROJ 1985	
A CLASSROOMS	484,300	187,700	296,600		296,600	8.5	5.1	1.58
B TEACHING LABS	471,600	168,200	306,000	-2,600	303,400	7.0	5.0	1.82
C SELF STY+T CLINIC	3,000	3,000	1,500	-1,500		.1		.50
D GYMNASIUM	20,300		20,300		20,300	.4	.2	99.99
E DEM SCHOOL+ARM'Y	10,100	10,100				.4	.1	0
F RESEARCH LAB	278,500	6,500	272,000		272,000	.3	2.9	41.85
G OFFICE	806,900	116,700	690,200		690,200	4.9	8.5	5.91
H LIBRARY	422,400	69,500	352,900		352,900	2.9	4.4	5.08
I SUB-TOTAL A-H	2,497,100	561,700	1,939,500	-4,100	1,935,400	24.5	26.2	3.45
J OTHER ACADEMIC	87,300	22,700	64,600		64,600	.9	.9	2.85
K GEN USE + SERV	530,400	129,600	401,100	- 300	400,800	5.0	5.6	3.09
L SUB-TOTAL A-K	3,114,800	714,000	2,405,200	-4,400	2,400,800			
M SUPPORT	314,600	43,800	270,800		270,800	1.8	3.3	6.18
N GRAND TOTAL	3,429,400	757,800	2,676,000	-4,400	2,671,600	32.1	36.0	3.53

* ADD'L NEED INDEX = (ACCUM'D TOTAL FOR SCHOOLS WITH ADDIT'L NEED)/(1967 INVENTORY EXCL INVEN'Y IN DEMOLISH CATEGORY)

REGIONAL CAMPUSES NEEDS SUMMARY

TABLE 9

INDIANA HIGHER EDUCATION FACILITIES COMPREHENSIVE PLANNING STUDY - SEPTEMBER, 1967

SUMMARY OF ACADEMIC-ADMINISTRATIVE SPACE NEEDS
FOR 23,930 UNDERGRADUATES, 5,170 GRADUATES, 29,100 TOTAL ENROLLMENT IN 1985

PRIVATE UNIVERSITIES

TYPE OF SPACE	ASSIGNABLE SQUARE FEET					AREA/ENROL		ADD'L NEED INDEX *
	PROJECTED REQ'T FOR YEAR 1985	- 1967 INVENTORY EXCL INVEN. IN DEMOLISH CAT'Y	= ACCUMULATED TOTALS FOR SCHOOLS WITH ADDIT'L NEED	SCHOOLS WITH EXCESS SPACE	= NET NEED ASSUMING SPACE MOBILITY AMONG SCHOOLS	ACTUAL 1967	PROJ 1985	
A CLASSROOMS	266,100	247,000	35,800	- 16,700	19,100	12.4	9.1	.14
B TEACHING LABS	232,000	257,400	32,800	- 58,200	-25,400	12.2	8.0	.13
C SELF STY+T CLINIC	18,600	16,700	7,500	- 5,600	1,900	.8	.6	.45
D GYMNASIUM	136,900	150,700	21,700	- 35,500	-13,800	7.0	4.7	.14
E DEM SCHOOL+ARM'Y	6,700		6,700		6,700	.3	.2	99.99
F RESEARCH LAB	114,500	128,900	26,700	- 41,100	-14,400	6.0	3.9	.21
G OFFICE	291,500	300,600	30,400	- 39,500	- 9,100	14.8	10.0	.10
H LIBRARY	501,900	438,800	124,700	- 61,600	63,100	20.5	17.2	.28
I SUB-TOTAL A-H	1,568,200	1,540,100	286,300	-258,200	28,100	74.0	53.9	.19
J OTHER ACADEMIC	54,900	14,900	40,000		40,000	.7	1.9	2.68
K GEN USE + SERV	217,100	80,700	136,400		136,400	3.9	7.5	1.69
L SUB-TOTAL A-K	1,840,200	1,635,700	462,700	-258,200	204,500			
M SUPPORT	185,800	72,500	113,300		113,300	3.6	6.4	1.56
N GRAND TOTAL	2,026,000	1,708,200	576,000	-258,200	317,800	82.2	69.6	.34

* ADD'L NEED INDEX = (ACCUM'D TOTAL FOR SCHOOLS WITH ADDIT'L NEED)/(1967 INVENTORY EXCL INVEN'Y IN DEMOLISH CATEGORY)

PRIVATE UNIVERSITIES NEEDS SUMMARY

TABLE 10

INDIANA HIGHER EDUCATION FACILITIES COMPREHENSIVE PLANNING STUDY - SEPTEMBER, 1967

SUMMARY OF ACADEMIC-ADMINISTRATIVE SPACE NEEDS
FOR 24,640 UNDERGRADUATES, 500 GRADUATES, 25,140 TOTAL ENROLLMENT IN 1985

PRIVATE COLLEGES - I

TYPE OF SPACE	ASSIGNABLE SQUARE FEET					AREA/ENROL		ADD'L NEED
	PROJECTED REQ'T FOR YEAR 1985	- 1967 INVENTORY EXCL INVEN. IN DEMOLISH CAT'Y	= ACCUMULATED TOTALS FOR SCHOOLS WITH ADDIT'L NEED	SCHOOLS WITH EXCESS SPACE	= NET NEED ASSUMING SPACE MOBILITY AMONG SCHOOLS	ACTUAL 1967	PROJ 1985	INDEX *
A CLASSROOMS	280,300	272,400	34,100	- 26,200	7,900	16.3	11.1	.13
B TEACHING LABS	206,700	252,600	11,800	- 57,700	-45,900	14.6	8.2	.47
C SELF STY+T CLINIC	32,300	22,600	14,700	- 5,000	9,700	1.3	1.3	.65
D GYMNASIUM	136,000	219,500	18,600	-102,100	-83,500	12.4	5.4	.85
E DEM SCHOOL+ARM'Y	3,900	3,200	700		700	.2	.2	.22
F RESEARCH LAB	21,800	19,200	9,200	- 6,600	2,600	1.1	.9	.48
G OFFICE	332,800	251,200	94,300	- 12,700	81,600	15.5	13.2	.38
H LIBRARY	439,200	271,900	167,300		167,300	15.3	17.5	.62
I SUB-TOTAL A-H	1,453,000	1,312,600	350,700	-210,300	140,400	76.7	57.8	.27
J OTHER ACADEMIC	50,900	47,600	23,500	- 20,200	3,300	2.7	2.0	.49
K GEN USE + SERV	271,000	179,100	105,300	- 13,400	91,900	10.4	10.8	.59
L SUB-TOTAL A-K	1,774,900	1,539,300	479,500	-243,900	235,600			
M SUPPORT	179,200	154,400	56,600	- 31,800	24,800	8.8	7.1	.37
N GRAND TOTAL	1,954,100	1,693,700	536,100	-275,700	260,400	98.7	77.7	.32

* ADD'L NEED INDEX = (ACCUM'D TOTAL FOR SCHOOLS WITH ADDIT'L NEED)/(1967 INVENTORY EXCL INVEN'Y IN DEMOLISH CATEGORY)

PRIVATE COLLEGES - I NEEDS SUMMARY

TABLE II

INDIANA HIGHER EDUCATION FACILITIES COMPREHENSIVE PLANNING STUDY - SEPTEMBER, 1967

SUMMARY OF ACADEMIC-ADMINISTRATIVE SPACE NEEDS
FOR 4,350 UNDERGRADUATES, 200 GRADUATES, 4,550 TOTAL ENROLLMENT IN 1985

PRIVATE COLLEGES - 2

TYPE OF SPACE	ASSIGNABLE SQUARE FEET					AREA/ENROL		ADD'L NEED INDEX *
	PROJECTED REQ'T FOR YEAR 1985	1967 INVENTORY - EXCL INVEN. IN DEMOLISH CAT'Y	ACCUMULATED TOTALS FOR SCHOOLS WITH ADDIT'L NEED	SCHOOLS WITH EXCESS SPACE	NET NEED ASSUMING SPACE MOBILITY AMONG SCHOOLS	ACTUAL 1967	PROJ 1985	
A CLASSROOMS	64,000	74,600	4,500	-15,100	-10,600	20.5	14.1	.06
B TEACHING LABS	33,400	50,300	800	-17,700	-16,900	13.7	7.3	.02
C SELF STY+T CLINIC	7,900	2,800	5,100		5,100	1.0	1.7	1.82
D GYMNASIUM	41,300	49,400	13,800	-21,900	- 8,100	14.5	9.1	.28
E DEM SCHOOL+ARM'Y								0
F RESEARCH LAB	3,300	300	3,000		3,000	.1	.7	10.00
G OFFICE	57,900	52,300	11,300	- 5,700	5,600	15.7	12.7	.22
H LIBRARY	92,000	57,700	34,300		34,300	15.5	20.2	.59
I SUB-TOTAL A-H	299,800	287,400	72,800	-60,400	12,400	81.0	65.9	.25
J OTHER ACADEMIC	10,500	5,800	6,200	- 1,500	4,700	1.6	2.3	1.07
K GEN USE + SERV	18,100	15,300	7,800	- 5,000	2,800	4.3	4.0	.51
L SUB-TOTAL A-K	328,400	308,500	86,800	-66,900	19,900			
M SUPPORT	33,300	24,400	13,800	- 4,900	8,900	8.1	7.3	.57
N GRAND TOTAL	361,700	332,900	100,600	-71,800	28,800	95.1	79.5	.30

* ADD'L NEED INDEX = (ACCUM'D TOTAL FOR SCHOOLS WITH ADDIT'L NEED)/(1967 INVENTORY EXCL INVEN'Y IN DEMOLISH CATEGORY)

TABLE 12

INDIANA HIGHER EDUCATION FACILITIES COMPREHENSIVE PLANNING STUDY - SEPTEMBER, 1967

SUMMARY OF ACADEMIC-ADMINISTRATIVE SPACE NEEDS
FOR 4,110 UNDERGRADUATES, 1,670 GRADUATES, 5,780 TOTAL ENROLLMENT IN 1985

CATHOLIC GIRLS SCHOOLS

TYPE OF SPACE	ASSIGNABLE SQUARE FEET					AREA/ENROL		ADD'L NEED INDEX *
	PROJECTED REQ'T FOR YEAR 1985	- 1967 INVENTORY EXCL INVEN. IN DEMOLISH CAT'Y	= ACCUMULATED TOTALS FOR SCHOOLS WITH ADDIT'L NEED	SCHOOLS WITH EXCESS SPACE	= NET NEED ASSUMING SPACE MOBILITY AMONG SCHOOLS	ACTUAL 1967	PROJ 1985	
A CLASSROOMS	52,400	51,300	2,600	- 1,500	1,100	14.2	9.1	.05
B TEACHING LABS	41,100	58,000	2,500	-19,400	-16,900	15.3	7.1	.04
C SELF STY+T CLINIC	4,400	6,600	400	- 2,600	- 2,200	1.7	.8	.06
D GYMNASIUM	18,000	25,100	2,500	- 9,600	- 7,100	6.6	3.1	.10
E DEM SCHOOL+ARM'Y	900	900				.2	.2	0
F RESEARCH LAB	9,500	700	8,800		8,800	.2	1.6	12.57
G OFFICE	75,700	49,800	25,900		25,900	13.6	13.1	.52
H LIBRARY	102,000	63,600	38,400		38,400	19.7	17.6	.60
I SUB-TOTAL A-H	304,000	256,000	81,100	-33,100	48,000	71.7	52.6	.32
J OTHER ACADEMIC	10,600	4,900	6,200	- 500	5,700	1.3	1.8	1.27
K GEN USE + SERV	56,600	77,800	9,400	-30,600	-21,200	20.7	9.8	.12
L SUB-TOTAL A-K	371,200	338,700	96,700	-64,200	32,500			
M SUPPORT	37,500	29,300	18,400	-10,200	8,200	8.3	6.5	.63
N GRAND TOTAL	408,700	368,000	115,100	-74,400	40,700	102.0	70.7	.31

* ADD'L NEED INDEX = (ACCUM'D TOTAL FOR SCHOOLS WITH ADDIT'L NEED)/(1967 INVENTORY EXCL INVEN'Y IN DEMOLISH CATEGORY)

CATHOLIC GIRLS SCHOOLS NEEDS SUMMARY

TABLE 13

INDIANA HIGHER EDUCATION FACILITIES COMPREHENSIVE PLANNING STUDY - SEPTEMBER, 1967

SUMMARY OF ACADEMIC-ADMINISTRATIVE SPACE NEEDS — ENGINEERING & TECHNOLOGY SCHOOLS
FOR 4,350 UNDERGRADUATES, 0 GRADUATES, 4,350 TOTAL ENROLLMENT IN 1985

TYPE OF SPACE	ASSIGNABLE SQUARE FEET					AREA/ENROL		ADD'L NEED
	PROJECTED REQ'T FOR YEAR 1985	- 1967 INVENTORY EXCL INVEN. IN DEMOLISH CAT'Y	= ACCUMULATED TOTALS FOR SCHOOLS WITH ADDIT'L NEED	SCHOOLS WITH EXCESS SPACE	= NET NEED ASSUMING SPACE MOBILITY AMONG SCHOOLS	ACTUAL 1967	PROJ 1985	INDEX *
A CLASSROOMS	67,800	67,800	10,600	-10,600		20.4	15.6	.16
B TEACHING LABS	55,200	106,500		-51,300	-51,300	30.5	12.7	0
C SELF STY+T CLINIC	1,600	1,200	700	- 300	400	.3	.4	.58
D GYMNASIUM	11,200	12,900		- 1,700	- 1,700	3.3	2.6	0
E DEM SCHOOL+ARM'Y	1,000	1,000				.3	.2	0
F RESEARCH LAB	5,900	7,400	400	- 1,900	- 1,500	1.9	1.4	.05
G OFFICE	56,900	45,800	16,300	- 5,200	11,100	14.0	13.1	.36
H LIBRARY	66,200	30,500	35,700		35,700	7.7	15.2	1.17
I SUB-TOTAL A-H	265,800	273,100	63,700	-71,000	- 7,300	78.3	61.1	.23
J OTHER ACADEMIC	9,300	11,400	3,000	- 5,100	- 2,100	4.6	2.1	.03
K GEN USE + SERV	74,600	28,600	46,000		46,000	7.3	17.1	1.61
L SUB-TOTAL A-K	349,700	313,100	112,700	-76,100	36,600			
M SUPPORT	35,300	34,900	10,100	- 9,700	400	11.0	8.1	.29
N GRAND TOTAL	385,000	348,000	122,800	-85,800	37,000	101.2	88.5	.35

* ADD'L NEED INDEX = (ACCUM'D TOTAL FOR SCHOOLS WITH ADDIT'L NEED)/(1967 INVENTORY EXCL INVEN'Y IN DEMOLISH CATEGORY)

ENGINEERING & TECHNOLOGY SCHOOLS NEEDS SUMMARY

TABLE 14

INDIANA HIGHER EDUCATION FACILITIES COMPREHENSIVE PLANNING STUDY - SEPTEMBER, 1967

SUMMARY OF ACADEMIC-ADMINISTRATIVE SPACE NEEDS
FOR 280 UNDERGRADUATES, 460 GRADUATES, 740 TOTAL ENROLLMENT IN 1985

RELIGION & THEOLOGY SCHOOLS

TYPE OF SPACE	ASSIGNABLE SQUARE FEET					AREA/ENROL		ADD'L NEED
	PROJECTED REQ'T FOR YEAR 1985	- 1967 INVENTORY EXCL INVEN. IN DEMOLISH CAT'Y	= ACCUMULATED TOTALS FOR SCHOOLS WITH ADDIT'L NEED	SCHOOLS WITH EXCESS SPACE	= NET NEED ASSUMING SPACE MOBILITY AMONG SCHOOLS	ACTUAL 1967	PROJ 1985	INDEX *
A CLASSROOMS	13,200	24,900		-11,700	-11,700	36.5	17.8	0
B TEACHING LABS	3,500	9,700	400	- 6,600	- 6,200	16.0	4.7	.04
C SELF STY+T CLINIC	100	900		- 800	- 800	2.2	.1	0
D GYMNASIUM		11,100		-11,100	-11,100	16.3		0
E DEM SCHOOL+ARM'Y								0
F RESEARCH LAB	900		900		900		1.2	99.99
G OFFICE	12,900	20,400		- 7,500	- 7,500	29.9	17.4	0
H LIBRARY	38,100	20,800	17,300		17,300	30.5	51.5	.83
I SUB-TOTAL A-H	68,700	87,800	18,600	-37,700	-19,100	131.4	92.8	.21
J OTHER ACADEMIC	2,400	2,400	1,100	- 1,100		3.5	3.2	.46
K GEN USE + SERV	7,100	37,500		-30,400	-30,400	58.2	9.6	0
L SUB-TOTAL A-K	78,200	127,700	19,700	-69,200	-49,500			
M SUPPORT	7,900	7,900	2,400	- 2,400		11.6	10.7	.30
N GRAND TOTAL	86,100	135,600	22,100	-71,600	-49,500	204.7	116.4	.16

* ADD'L NEED INDEX = (ACCUM'D TOTAL FOR SCHOOLS WITH ADDIT'L NEED)/(1967 INVENTORY EXCL INVEN'Y IN DEMOLISH CATEGORY)

RELIGION & THEOLOGY SCHOOLS NEEDS SUMMARY

TABLE 15

INDIANA HIGHER EDUCATION COMPREHENSIVE FACILITIES PLANNING STUDY - SEPTEMBER, 1967

COMPARATIVE SUMMARY OF 1985 ADDITIONAL FACILITIES NEEDS AMONG CAMPUS GROUPS FOR EACH SPACE TYPE

	ADDL NEED INDEX	ADDITIONAL FACILITIES NEED (ASF)
CLASSROOMS		
REGIONAL CAMPUSES	1.58	296,600
STATE UNIVERSITIES	.54	379,000
ENGR AND TECHNOLOGY SCHOOLS	.16	10,600
PRIVATE UNIVERSITIES	.14	35,800
PRIVATE COLLEGES - 1	.13	34,100
PRIVATE COLLEGES - 2	.06	4,500
CATHOLIC GIRLS SCHOOLS	.05	2,600
RELIGION + THEOLOGY SCHOOLS	.00	0
ALL CAMPUSES STATEWIDE	.47	763,200
TEACHING LABORATORIES		
REGIONAL CAMPUSES	1.82	306,000
STATE UNIVERSITIES	.48	446,600
PRIVATE COLLEGES - 1	.47	11,800
PRIVATE UNIVERSITIES	.13	32,800
CATHOLIC GIRLS SCHOOLS	.04	2,500
RELIGION + THEOLOGY SCHOOLS	.04	400
PRIVATE COLLEGES - 2	.02	800
ENGR AND TECHNOLOGY SCHOOLS	.00	0
ALL CAMPUSES STATEWIDE	.44	800,900
SELF STUDY + TEACHING CLINIC		
PRIVATE COLLEGES - 2	1.82	5,100
STATE UNIVERSITIES	1.45	65,900
PRIVATE COLLEGES - 1	.65	14,700
ENGR AND TECHNOLOGY SCHOOLS	.58	700
REGIONAL CAMPUSES	.50	1,500
PRIVATE UNIVERSITIES	.45	7,500
CATHOLIC GIRLS SCHOOLS	.06	400
RELIGION + THEOLOGY SCHOOLS	.00	0
ALL CAMPUSES STATEWIDE	.96	95,800

	ADDL NEED INDEX*	ADDITIONAL FACILITIES NEED (ASF)
OFFICE		
REGIONAL CAMPUSES	5.91	690,200
STATE UNIVERSITIES	.73	1,020,800
CATHOLIC GIRLS SCHOOLS	.52	25,900
PRIVATE COLLEGES - 1	.38	94,300
ENGR AND TECHNOLOGY SCHOOLS	.36	16,300
PRIVATE COLLEGES - 2	.22	11,300
PRIVATE UNIVERSITIES	.10	30,400
RELIGION + THEOLOGY SCHOOLS	.00	
ALL CAMPUSES STATEWIDE	.84	1,889,200
LIBRARY		
REGIONAL CAMPUSES	5.08	352,900
STATE UNIVERSITIES	1.30	875,300
ENGR AND TECHNOLOGY SCHOOLS	1.17	35,700
RELIGION + THEOLOGY SCHOOLS	.83	17,300
PRIVATE COLLEGES - 1	.62	167,300
CATHOLIC GIRLS SCHOOLS	.60	38,400
PRIVATE COLLEGES - 2	.59	34,300
PRIVATE UNIVERSITIES	.28	124,700
ALL CAMPUSES STATEWIDE	1.01	1,645,900
OTHER ACADEMIC FACILITIES		
REGIONAL CAMPUSES	2.85	64,600
PRIVATE UNIVERSITIES	2.68	40,000
CATHOLIC GIRLS SCHOOLS	1.27	6,200
PRIVATE COLLEGES - 2	1.07	6,200
STATE UNIVERSITIES	.57	138,000
PRIVATE COLLEGES - 1	.49	22,500
RELIGION + THEOLOGY SCHOOLS	.46	1,100
ENGR AND TECHNOLOGY SCHOOLS	.03	3,000
ALL CAMPUSES STATEWIDE	.80	282,600

GYMNASIUM		
REGIONAL CAMPUSES	99.99	20,300
PRIVATE COLLEGES - 1	.85	18,600
STATE UNIVERSITIES	.75	179,800
PRIVATE COLLEGES - 2	.28	13,800
PRIVATE UNIVERSITIES	.14	21,700
CATHOLIC GIRLS SCHOOLS	.10	2,500
RELIGION + THEOLOGY SCHOOLS	.00	0
ENGR AND TECHNOLOGY SCHOOLS	.00	0
ALL CAMPUSES STATEWIDE	.28	256,700

DEMONSTRATION SCHOOL + ARMORY		
PRIVATE UNIVERSITIES	99.99	6,700
STATE UNIVERSITIES	.53	14,800
PRIVATE COLLEGES - 1	.22	700
REGIONAL CAMPUSES	.00	0
PRIVATE COLLEGES - 2	.00	0
CATHOLIC GIRLS SCHOOLS	.00	0
ENGR AND TECHNOLOGY SCHOOLS	.00	0
RELIGION + THEOLOGY SCHOOLS	.00	0
ALL CAMPUSES STATEWIDE	.08	22,200

RESEARCH LABORATORIES		
RELIGION + THEOLOGY SCHOOL	99.99	900
REGIONAL CAMPUSES	41.85	272,000
CATHOLIC GIRLS SCHOOLS	12.57	8,800
PRIVATE COLLEGES - 2	10.00	3,000
STATE UNIVERSITIES	.73	1,020,800
PRIVATE COLLEGES - 1	.48	9,200
PRIVATE UNIVERSITIES	.21	26,700
ENGR AND TECHNOLOGY SCHOOLS	.05	400
ALL CAMPUSES STATEWIDE	.94	958,400

GENERAL USE + SERVICE FACIL		
REGIONAL CAMPUSES	3.09	401,100
STATE UNIVERSITIES	2.29	380,000
PRIVATE UNIVERSITIES	1.69	136,400
ENGR AND TECHNOLOGY SCHOOLS	1.61	46,000
PRIVATE COLLEGES - 1	.59	105,300
PRIVATE COLLEGES - 2	.51	7,800
CATHOLIC GIRLS SCHOOLS	.12	9,400
RELIGION + THEOLOGY SCHOOLS	.00	0
ALL CAMPUSES STATEWIDE	1.52	1,086,000

SUPPORT		
REGIONAL CAMPUSES	6.18	270,800
PRIVATE UNIVERSITIES	1.56	113,300
STATE UNIVERSITIES	.84	458,300
CATHOLIC GIRLS SCHOOLS	.63	18,400
PRIVATE COLLEGES - 2	.57	13,800
PRIVATE COLLEGES - 1	.37	56,600
RELIGION + THEOLOGY SCHOOLS	.30	2,400
ENGR AND TECHNOLOGY SCHOOLS	.29	10,100
ALL CAMPUSES STATEWIDE	1.04	943,700

GRAND TOTAL		
REGIONAL CAMPUSES	3.53	2,676,000
STATE UNIVERSITIES	.73	4,595,900
ENGR AND TECHNOLOGY SCHOOLS	.35	122,800
PRIVATE UNIVERSITIES	.34	576,000
PRIVATE COLLEGES - 1	.32	536,100
CATHOLIC GIRLS SCHOOLS	.31	115,100
PRIVATE COLLEGES - 2	.30	100,600
RELIGION + THEOLOGY SCHOOLS	.16	22,100
ALL CAMPUSES STATEWIDE	.75	8,744,600

*ADDL NEED INDEX = (ADDL FACILITIES NEED)/(1967 INVENTORY EXCLUDING INVENTORY IN DEMOLISH CATEGORY)

TABLE 16

INDIANA HIGHER EDUCATION FACILITIES COMPREHENSIVE PLANNING STUDY - SEPTEMBER, 1967

1967 ACADEMIC-ADMINISTRATIVE SPACE INVENTORY BY CAMPUS GROUP AND BY ROOM TYPE

	ASSIGNABLE SQUARE FEET		PERCENT OF
	TOTAL INVENTORY	INVENTORY IN DEMOLISH CATEGORY	INVENTORY IN DEMOLISH CAT
INVENTORY BY CAMPUS GROUP			
REGIONAL CAMPUSES	904,000	146,200	16.2
ENGR AND TECHNOLOGY SCHOOLS	399,600	51,600	12.9
STATE UNIVERSITIES	7,035,500	737,800	10.5
PRIVATE COLLEGES - 2	352,900	20,000	5.7
CATHOLIC GIRLS SCHOOLS	386,000	18,000	4.7
PRIVATE COLLEGES - 1	1,758,600	64,900	3.7
PRIVATE UNIVERSITIES	1,760,300	52,100	3.0
RELIGION + THEOLOGY SCHOOLS	139,600	4,000	2.9
ALL CAMPUSES STATEWIDE	12,736,500	1,094,600	8.6
STATEWIDE INVEN BY ROOM TYPE			
SUPPORT	1,181,500	271,600	22.9
SELF STUDY + TCHG CLINIC	116,900	17,600	15.0
OFFICE	2,533,100	292,100	11.5
OTHER ACADEMIC FACILITIES	388,000	34,100	8.8
CLASSROOMS	1,755,200	132,700	7.6
GENERAL USE + SERVICE FACIL	773,900	59,000	7.6
DEMONSTRATION SCHOOL+ARMORY	316,700	22,200	7.0
TEACHING LABORATORIES	1,972,200	135,500	6.9
RESEARCH LABORATORIES	1,071,000	56,200	5.2
LIBRARY	1,672,400	46,600	2.8
GYMNASIUM	955,600	27,000	2.8
ALL ROOM TYPES STATEWIDE	12,736,500	1,094,600	8.6

APPENDIX A

INDIANA HIGHER EDUCATION FACILITIES COMPREHENSIVE PLANNING STUDY
SEPTEMBER, 1967

INDIANA COLLEGES AND UNIVERSITIES BY CAMPUS GROUP

STATE UNIVERSITIES

BALL STATE
INDIANA STATE

INDIANA
PURDUE

VINCENNES

REGIONAL CAMPUSES

ISU EVANSVILLE
IU KOKOMO

IU SOUTHEASTERN
IU SOUTH BEND

INDIANAPOLIS[a]
LAKE COUNTY[b]

PU NORTH CENTRAL
PU-IU FORT WAYNE

PRIVATE UNIVERSITIES

BUTLER
EVANSVILLE

NOTRE DAME
VALPARAISO

PRIVATE COLLEGES-1

ANDERSON
DEPAUW

EARLHAM
GOSHEN

HANOVER
INDIANA CENTRAL

MANCHESTER
MARIAN

ST JOSEPH
ST JOSEPH CALUMET

TAYLOR
WABASH

PRIVATE COLLEGES-2

BETHEL
FRANKLIN

GRACE
HUNTINGTON

MARION
OAKLAND CITY

CATHOLIC GIRLS SCHOOLS

ST FRANCIS
ST MARY-OF-THE-WOODS

ST MARY'S

ENGINEERING AND TECHNOLOGY SCHOOLS

INDIANA INST TECH
ROSE POLYTECHNIC INST

TRI-STATE

RELIGION AND THEOLOGY SCHOOLS

CHRISTIAN THEOL
ST MEINRAD[c]

a INDIANAPOLIS = IU INDIANAPOLIS + PU INDIANAPOLIS + HERRON
b LAKE COUNTY = IU NORTHWEST + PU CALUMET
c ST MEINRAD = COLLEGE + SEMINARY

APPENDIX B

DEFINITIONS: PART I - ROOM CLASSIFICATIONS

(Tentative 1967 U.S.O.E. classification numbers in parentheses)

CLASSROOM FACILITIES

110	RECITATION	(110)
120	SEMINAR	(110)
130	LECTURE	(110)
199	CLASS SERV	(115)

TEACHING LABORATORIES

210	TEACH LAB	(210)
219	T LAB SERV	(215)

SELF STUDY AND TEACHING CLINIC

220	SELF STUDY	(230)
230	TEACH CLIN	(540)

GYMNASIUM

240	GYM	(520)
249	GYM SERV	(525)

DEMONSTRATION SCHOOL AND ARMORY

250	ARMORY	(510)
259	ARM SERV	(515)
260	DEM SCHOOL	(550)

RESEARCH LABORATORIES

270	RES LAB	(250)
279	RES SERV	(255)

OFFICE FACILITIES

310	OFFICE	(310)
320	CONFERENCE	(350)
330	INTERVIEW	(315)
340	COMMONS	(650)
350	OFCE STUDIO	(310)
399	OFCE SERV	(315)

LIBRARY AND STUDY FACILITIES

410	STUDY	(410)
420	STACK	(420)

LIBRARY AND STUDY FACILITIES - CONT.

430	CARREL	(410)
440	LIBR PROC	(440)
450	EXHIBIT	(620)
459	EXHIB SERV	(625)
499	LIBR SERV	(455)

SUPPORT FACILITIES

510	SHOP	(720)
520	LAUNDRY	(950)
530	STORAGE	(730)
540	WAREHOUSE	(730)
550	FOOD STOR	(940)
560	DATA PROC	(710)
569	DP SERV	(715)
570	COM MEDIA	(530)
579	C MEDIA SV	(535)
580	VEHIC STOR	(740)
589	VEHIC SERV	(745)

GENERAL USE AND SERVICE FACILITIES

610	AUDITORIUM	(610)
619	AUD SERV	(615)
620	CHAPEL	(610)
629	CHAP SERV	(615)
630	LOUNGE	(650)
640	RECREATION	(670)
649	RECR SERV	(675)
650	UNION ACTY	(670)
659	UNION SERV	(675)
660	STUDENT ACT	(310)
670	CAFETERIA	(630)
679	CAFE SERV	(635)
680	MERCH SERV	(660)

OTHER ACADEMIC FACILITIES

MEDICAL CARE FACILITIES

710	MED PTNT RM	(820)
720	MED CLINIC	(810)
729	MED SERV	(815)

OTHER ACADEMIC FACILITIES - CONT.

MEDICAL CARE FACILITIES - CONT.

730	DENT CLINIC	(840)
739	DENT SERV	(845)
740	STUDNT PTNT	(640)
749	STUDNT HLTH	(645)
750	VET ANIM RM	(860)
760	VET CLINIC	(850)
769	VET SERV	(855)

RESIDENTIAL FACILITIES

810	SLEEP STUDY	(910)
820	COUNSELOR	(910)
830	DORMITORY	(910)
840	HOUSE	(920)
850	APARTMNT	(930)
860	GUEST	(660)
899	RESID SERV	(910)

OTHER AREAS

910	FIELD BLDG	(560)
920	SPECT SEAT	(523)
930	UNCLASS	
940	REMODELING	
990	MISC	

GENERAL BUILDING FACILITIES

010	CUSTODIAL
020	REST ROOM
030	UTILITY
040	CIRCUL

APPENDIX B - PART I CONT'D

CLASSROOM FACILITIES

110	RECITATION	Recitation - Any general purpose instructional room (typically equipped with tablet-arm chairs) designed for recitation, quiz or similar small group instruction, which does not require special-purpose equipment for student use. Rooms with stepped or sloped floors are not included. (See LECTURE).
120	SEMINAR	Seminar - A room equipped with table (s) and chairs used for small organized discussion type classes. (A room with tables and chairs which is used primarily for meetings, as opposed to classes, is a Conference Room.)
130	LECTURE	Lecture - A room with stepped or sloped floor, generally of large capacity, used primarily for lecture or lecture-demonstration classes. Lecture rooms typically are equipped with tablet-arm chairs, benches or auditorium type seating. They are distinguished from recitation rooms by the floor structure and size, from auditoria by lack of separate stage and functional use. (See AUDITORIUM).
199	CLASS SERV	Classroom Service - A facility serving and adjacent to classroom areas used jointly with or as an auxiliary support area to recitation, seminar or lecture facilities. These rooms might typically house audio-visual aids, store materials used in class demonstrations, be cloak rooms, preparation rooms, closets, projection booths, etc.

TEACHING LABORATORIES

210	TEACH LAB	Teaching Laboratory - A room used for organized classes in a subject field which requires special-purpose equipment for student participation, experimentation, observation or practice. This includes special-purpose instructional facilities in music, art, drafting, statistics, etc., as well as science and engineering, but excludes physical education and military drill areas. (See GYM, ARMORY, TECH CLIN and SELF STUDY).
219	T LAB SERV	Teaching Laboratory Service - Auxiliary facilities for teaching laboratories such as supply and equipment issue rooms, balance rooms, preparation rooms, cold rooms, dark rooms, animal rooms, greenhouses, etc., excluding those for physical education and military sciences.

APPENDIX B - PART I CONT'D

SELF STUDY AND TEACHING CLINIC

220 SELF STUDY

Self Study Room - A room especially equipped and designed for individual and independent student experimentation, observation, or practice in a particular field of study. This includes music practice rooms, self-study rooms, auto-tutorial facilities, language and music listening labs, and similar practice cubicles which serve a particular subject area. Stations may be grouped or individualized, but are distinguished from other teaching laboratories in that instructor supervision is remote or non-existent and/or by electronic or other devices. They are generally not regularly scheduled for formal classes.

230 TEACH CLIN

Teaching Clinic - A specialized instructional facility used primarily for individual practical exercise in the examination, observation, and treatment of patients in a program other than human or veterinary medicine, dentistry or student health care. Included in this category are rooms, testing rooms, consultation rooms, therapy rooms, etc., which are used as part of an instructional requirement. Clinics are typically associated with such educational areas as psychology, speech and hearing, remedial reading and remedial writing. It does not include in-patient or out-patient clinics for the medical, dental or optometric treatment of humans or animals. (See MEDICAL CARE FACILITIES).

GYMNASIUM

240 GYM

Gymnasium - The rooms and activity areas used by students, staff or the public for athletic activities. This includes basketball courts, wrestling rooms, swimming pools, indoor tracks, ice rinks, handball courts, and fieldhouses, but excludes spectator seating and service areas. It does not include outdoor fields, such as tennis courts, archery ranges, ball diamonds, etc. (Dance studios should be classified as TEACH LAB).

249 GYM SERV

Gymnasium Service - Rooms such as shower, locker, equipment, dressing, training, skate sharpening, towel rooms, etc., which are an integral part of the operation of a gymnasium. (Concession areas are MERCH SERV).

APPENDIX B - PART I CONT'D

DEMONSTRATION SCHOOL AND ARMORY

250	ARMORY	Armory - Large indoor drill areas and rifle ranges. (Other special purpose military science instructional facilities such as map rooms, war rooms, and situation rooms are classified as TEACH LAB).
259	ARM SERV	Armory Service - Supply rooms, weapons rooms, locker rooms, auxiliary facilities which directly serve an Armory facility.
260	DEM SCHOOL	Demonstration School - Nurseries, elementary and secondary lab schools, demonstration houses and home management houses, owned and operated by the institution, which are used for practice teaching or demonstrating principles of home management. Generally, such areas will not be further designated except for rooms which serve as offices for collegiate faculty or classrooms and laboratories used only for collegiate level classes.

RESEARCH LABORATORIES

270	RES LAB	Research Laboratory - A room used by students or staff for laboratory applications, laboratory research, and/or training in research methodology which requires special purpose equipment, and which is <u>not</u> primarily used by formal classes. This category is intended to include laboratory rooms which may consist in part of desk or office facilities. However, if the room includes the primary office facilities for a full-time faculty member which are clearly distinguishable or separable, then that portion of the room should be prorated to OFFICE.
279	RES SERV	Research Laboratory Service - Service rooms which are utilized by research personnel and which are auxiliary to a research laboratory or are outside the primary location of the individual's or group's research. This includes darkrooms, controlled-environment rooms, animal rooms, greenhouses, sterilizer rooms, supply and equipment issue rooms, or other auxiliary rooms to research areas. (See RES LAB, T LAB SERV).

OFFICE FACILITIES

310	OFFICE	Office - A room containing office equipment where the instructional, research, administrative, or other

APPENDIX B - PART I CONT'D

310	OFFICE - cont.	staff conduct their work principally at a desk or table. This category includes combination office-seminar, office-counseling or office-conference rooms which the staff member occupies permanently. Fine Arts Studios (art, music, etc.) which permanently house a staff member, are classified as OFCE STUDIO. Large rooms, such as glass shops, print shops, reading rooms, research labs, etc., which may have desk space for a technician or staff member are classified according to their primary purpose, unless the area dedicated to office functions is a significant fraction of the total room, in which case proration would be appropriate. (See RES LAB).
320	CONFERENCE	Conference - A room equipped with a large table (s) and chairs used primarily for staff meetings or group meetings but not ordinarily used for organized classes.
330	INTERVIEW	Interview - A small room of about 60 square feet especially designed and used for student or employee counseling, testing or interview. The room is typically equipped with limited office type furniture (i.e., small desk, table, chairs) and is usually used on a free time or scheduled basis by various counselors. If a staff member occupies the room continuously, it should be classified as OFFICE.
340	COMMONS	Commons - Coffee rooms or adjacent rest areas in academic or administrative buildings designated as a staff lounge or staff-student lounge used for relaxing from work. These rooms may or may not be equipped with refreshment dispensing equipment. (This room type was projected under the General Use and Service Facilities category.)
350	OFCE STUDIO	Office-Studio - A room which serves as the office and personal studio for a faculty member and which may have specialized equipment for the instruction of individual students. (For example, music or fine arts.)
399	OFCE SERV	Office Service - Rooms which directly serve offices, such as file rooms, vaults, machine rooms, mimeograph rooms, waiting rooms, supply rooms, and other auxiliary office facilities, including private toilets and adjacent rest areas, and internal corridors within office suites.

APPENDIX B - PART I CONT'D

LIBRARY AND STUDY FACILITIES

410	STUDY	Study Room - A room equipped with library tables, chairs, and/or study desks which is reserved as a quiet room for the primary purpose of study. This classification is intended to distinguish the principal floor area devoted to study tables and chairs and includes typing and microfilm rooms, listening rooms, semi-private desks or tables with privacy screens located in or contiguous to bookshelf area, and prorata portions of open-stack reading rooms.
420	STACK	Stack Areas - The collection-housing facilities which provide shelving for books or audio-visual materials used by staff or students. It includes the prorated portions of open-stack reading rooms containing ranges of free-standing shelving units. This category does not include incidental shelf space in seminar rooms, classrooms, offices and other non-library areas.
430	CARREL	Library Carrel - An individual private study room located in a library area (usually within or adjoining the library stacks) which can be locked. Open carrels or unenclosed individual study desks should be classified as STUDY.
440	LIBR PROC	Library Processing - Work areas devoted to the acquisition, cataloging, circulation and maintenance of the library collection. Included in this category are card catalog areas, circulation desk, book binding, microfilm processing, acquisition work areas and similar areas. This classification does not include staff offices, acquisitions or file offices where the preponderance of work is done at desks (See OFFICE) high-volume printing facilities (See SHOPS) or formal "Library Science" instructional areas. (See TEACH LAB).
450	EXHIBIT	Exhibition and Museum Areas - A room used for the preservation and exhibition of artistic, historical, or scientific objects. This includes art galleries, trophy rooms, museums, etc., and may include departmental collections except those used directly as part of an instructional program which should be classified as T LAB SERV.
459	EXHIB SERV	Exhibition and Museum Service - Rooms which directly serve an exhibition facility such as work rooms for preparing, packing, unpacking and housing materials; vaults and other special preservation

APPENDIX B - PART I CONT'D

459 EXHIB SERV - cont.

facilities, etc. Relatively inactive storage of materials in crates or packing cases should be classified as STORAGE.

SUPPORT FACILITIES

510 SHOP

Shop - Rooms containing equipment used for the manufacture of products or to maintain equipment not directly related to instruction or research. This includes central machine shops, carpenter shops, plumbing shops, electrical shops, painting shops, central duplicating, and printing shops. This does not include industrial arts and vocational-technical shops used for instruction. (See TEACH LAB). Highly specialized shops which directly serve instruction or research should be classified in the appropriate laboratory service category. Maintenance and repair areas for motor vehicles, airplanes and boats should be classified as VEHIC SERV.

520 LAUNDRY

Laundry - Central facilities for washing, drying, ironing, mending or special treatment to prepare linens, uniforms and other items of clothing. Small "laundromats" or coin operated facilities are classified as RESID SERV or MERCH SERV as appropriate.

530 STORAGE

Storage - Areas used for central and inactive storage. Storage areas specifically related to other functions follow the classification of that function; thus, an office storage closet is Office Service and a kitchen pantry is Cafeteria Service. The distinction between a service classification, warehouse classification and the storage classification is determined by separation from the function it serves and the degree of inactivity.

540 WAREHOUSE

Warehouse and Active Supply - Rooms designed for bulk or quantity storage and handling of consummable items or items which rotate regularly for distribution. This includes such areas as central warehouses, central chemical or physics stores, linen and laundry storerooms, central maintenance parts rooms, publications holding rooms, etc.

550 FOOD STOR

Central Food Storage - A central facility for the processing and storage of foods used in dining halls and cafeterias. This includes food storage areas, lockers, cold rooms, refrigeration, meat processing areas, etc., located in a central food stores building.

APPENDIX B - PART I CONT'D

560 DATA PROC — Data Processing-Computer - A room equipped with electro-mechanical or electronic computing machinery. This classification includes keypunch rooms, punched card processing equipment, digital or analog computer rooms, and similar data processing areas. It does not include rooms containing only desk calculators, posting-billing machines, check-writing machines or other similar small office machines. A data-processing facility used only for instruction should be classified as a TEACH LAB.

569 DP SERV — Data Processing-Computer Service - A room which directly serves a data processing facility as an extension of the activities of that facility. This includes such areas as card storage, paper form storage, tape storage, control rooms, plugboard storage, wiring rooms, equipment repair rooms, observation rooms, and similar service areas.

570 COM MEDIA — Communication and Graphics Media Studio - A room equipped for use in the production and distribution of audio or graphic media. This category includes TV studios, radio studios, sound studios, graphics studios, photographic studios. Studios used primarily for organized classes to train students in communications techniques are TEACH LAB, as are music, art or similar 'studios' in the fine arts.

579 C MEDIA SV — Communications and Graphics Media Studio Service - Rooms which serve an audio visual, radio, TV or photographic facility as a direct extension of the activities of such facilities. This includes such areas as film library, tape library, control rooms, video tape recorder room, property storage, recording room, engineering maintenance rooms, etc.

580 VEHIC STOR — Vehicle Storage - A large building or room primarily used for housing and garaging vehicles. This includes garages, boat houses or marinas, airport hangars, enclosed parking ramps, and truck or tractor sheds.

589 VEHIC SERV — Vehicle Service - Rooms and areas used for parts supply, maintenance or repair of automotive equipment, boats and airplanes.

GENERAL USE AND SERVICE FACILITIES

610 AUDITORIUM — Auditorium - A room possessing a stage which is designed and equipped for dramatic or musical presentations or other exhibitions including seating area, aisles, stage and orchestra pit. This

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610	AUDITORIUM - cont.	classification encompasses theaters, auditoriums, concert halls, pavilions, rehearsal halls, arenas, etc.
619	AUD SERV	Auditorium Service - Auxiliary rooms which are an integral part of auditorium facilities such as checkrooms, ticket sales areas, backstage areas, dressing rooms, projection rooms, 'green rooms', costume storage, control rooms, etc.
620	CHAPEL	Chapel - Areas used for devotional activities, including chancel, nave and all seating areas. Prayer and meditation rooms are also included.
629	CHAP SERV	Chapel Service - Rooms which serve chapel and sanctuary areas such as choir dressing rooms, organ loft, etc.
630	LOUNGE	Lounge - A room of relatively formal decor typically in residential and union buildings used for lounging, rest and relaxation and furnished with upholstered furniture, draperies, and/or carpeting (the term lounge is used in the literal sense of the noun and not as a euphemism for toilet area).
640	RECREATION	Recreation - A room used by students, staff and/or the public for recreational purposes. This includes such rooms as bowling alleys, pool and billards rooms, ping-pong rooms, chess rooms, card playing rooms, hobby rooms, game rooms, and similar areas used for activities involving only limited physical exercise.(See GYM).
649	RECR SERV	Recreation Service - Rooms which directly serve recreational facilities such as storage closets, equipment issue rooms, etc.
650	UNION ACTY	Union Activity - A multi-purpose room in a student union or faculty center used for meetings, dancing, exhibits, banquets, etc. This includes such rooms as union meeting rooms, union conference areas, ballrooms, banquet halls, and similar facilities.
659	UNION SERV	Union Service - Auxiliary areas used to store and maintain equipment and furniture used in Union Activity rooms. Typically, this includes chair storage, ballroom table and equipment storage, ballroom or banquet hall lighting and sound control booths, etc.

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660 STUDENT ACT — Student Activity - Office or other light activity work areas provided for student organization. Typically, these will be located in student unions or residence halls.

670 CAFETERIA — Cafeteria and Dining - Rooms designed for regular meal or snack service. This includes all dining areas, cafeterias, snack bars, restaurants and other formal food facilities. (See MERCH SERV, COMMONS).

679 CAFE SERV — Cafeteria Service - Rooms such as kitchens, refrigerations rooms, freezers, dishwashing rooms, serving lines, meat cutting areas, etc., and other non-dining areas which directly serve a food facility.

680 MERCH SERV — Merchandising Service - A room or group of rooms used to sell products or services to students, staff or to the public on an over-the-counter basis. Includes bookstores, barber shops, post offices, dairy stores, student union 'desks,' vending machine areas, etc.

OTHER ACADEMIC FACILITIES

MEDICAL CARE FACILITIES

710 MED PTNT RM — Medical Care Patient Room - A room equipped with a bed (s) in which a human patient is cared for while staying in the hospital. This includes private, semi-private and ward rooms. (See STUDNT PTNT).

720 MED CLINIC — Medical Care Hospital Clinic - Rooms used for the medical examination and/or treatment of human in-patients or out-patients. This category includes examination rooms, operating rooms, delivery rooms, labor rooms, recovery rooms and other special pre- and post-operative patient care rooms, physical and occupational therapy rooms, x-ray rooms, etc. Does not include student health care facilities (See STUDNT HLTH).

729 MED SERV — Medical Care Clinic Service - Clinical laboratories, diagnostic laboratories, dispensaries, radiological storage, control rooms, animal rooms, sterilizing rooms, chart rooms, equipment issue rooms, etc., and similar rooms which are auxiliary to examination and treatment facilities and which the patient does not normally visit or areas which serve in a more general way to facilitate the hospital's operation such as nursing stations, linen rooms, etc.

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730	DENT CLINIC	Dental Clinic - Rooms used for the dental examination and/or treatment of humans.
739	DENT SERV	Dental Clinic Service - Rooms such as laboratories, supply rooms, sterilizing rooms, etc., which directly serve a dental clinic.
740	STUDNT PTNT	Student Health Patient Room - Patient bedrooms or ward rooms in student health care facilities or infirmaries. Does not include patient rooms in general hospitals. (See MED PTNT RM).
749	STUDNT HLTH	Student Health Service - Rooms used for examination, diagnosis or treatment of patients in student health care facilities, including auxiliary service and support areas.
750	VET ANIM RM	Veterinary Animal Hospital and Clinic - Rooms which provide housing for in-patient or out-patient animals in veterinary clinics such as a cage, stall or wards. Rooms which house animals for use in instruction or research laboratories are classified as T LAB SERV OR RES SERV.
760	VET CLIN	Veterinary Hospital and Clinic - Rooms used for the medical examination or treatment of animals as in-patients or out-patients. This includes surgery rooms, x-ray rooms, autopsy rooms, diagnosis rooms, etc.
769	VET SERV	Veterinary Hospital Clinic Service - Rooms such as clinical laboratories, supply rooms, scrub rooms, drug rooms, and similar areas which are auxiliary to veterinary clinic areas.

RESIDENTIAL FACILITIES

810	SLEEP STUDY	Residential Sleep-Study - Rooms which comprise the basic residential facility for one to four single students (i.e., rooms which hold the student beds, wardrobes and individual study desks, but not including toilet facilities). Study rooms for general use, not part of bedroom or sleeping room suites, should be classified as STUDY. If, however, separate sleeping rooms, wardrobe and/or study rooms form a suite, the entire complex should be classified as SLEEP-STUDY.
820	COUNSELOR	Counselor - A room or suite of rooms provided for the student or staff advisor, furnished as a

APPENDIX B - PART I CONT'D

820	COUNSELOR - cont.	residential room and usually including private toilet facilities.
830	DORMITORY	Dormitory - A room used exclusively for sleeping more than four persons. Anciliary rooms accommodating the wardrobes and/or the individual student desks are classified as SLEEP STUDY.
840	HOUSE	House - A house or single family dwelling provided for or rented to staff (or students). Includes president's and faculty homes.
850	APARTMNT	Housekeeping Apartment - A group of rooms provided for staff or students designed as a complete housekeeping unit (includes bedroom, living room, kitchen and toilet facilities).
860	GUEST	Guest Room or Apartment - Sleeping accommodations furnished as a residential room or suite, but intended specifically for guest lodging.
899	RESID SERV	Residential Service - Mail room, sewing rooms, laundry and pressing rooms for students, trunk storage rooms, linen closets, telephone rooms, maid rooms and other such rooms which serve a residential hall or apartment complex.

OTHER AREAS

910	FIELD BLDG	Field Building - All assignable floor areas of barns, animal shelters, storage buildings, sheds and other structures for the handling, storage and/or protection of farm produce, supplies, tools. This includes structures typically (but not necessarily) of light frame construction with unfinished interiors characteristic of agricultural field activities and generally located outside the central campus. Finished rooms in field buildings such as endocrine research laboratories, dairy research laboratories, or specific instructional areas should be placed in other appropriate classifications.
920	SPECT SEAT	Spectator Seating - The permanent seating area in fieldhouses, gymnasia and natatoria. Temporary or moveable seating areas should be considered as part of the gymnasium floor area.
930	UNCLASS	Unclassified - Areas whose classification cannot be determined because they are vacant or unused, but

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930 UNCLASS - cont.

which later may be classified when put to use or further modified. Includes such areas as empty rooms and newly finished rooms for which no use has been specified.

940 REMODELING — Remodeling - A temporary classification for a room which is undergoing extensive revisions, but which has not yet been remodeled or is in the process of being remodeled.

990 MISC — Miscellaneous - A classification of last resort to be used only when an area clearly does not fit a specific classification appearing in this list, and cannot be classified or prorated with two or more classifications as described in the accompanying inventory instructions. When this category is used, the area must be further identified and described in order to present information about the room.

GENERAL BUILDING FACILITIES

010 CUSTODIAL — Custodial - Room specifically set aside for building services such as janitor rooms, janitorial storerooms, shipping and receiving rooms, trash rooms, mop rooms, locker rooms, excluding those areas clearly classifiable as STORAGE, and those maintenance areas classified as SHOP.

020 REST ROOM — Rest Room - Public toilets not including those designated for special or private use (See OFFICE SERV, GYM SERV, ETC.). Includes those rest areas usually adjacent to women's public toilets.

030 UTILITY — Utility - Areas used to house the machines and physical equipment for the heating, air conditioning, power, telephone, water services, etc., in a building. (This includes transformers, switchgear, telephone gear, compressors, softeners and water conditioners, inside cooling towers, elevator or escalator machinery, electrical cabinets, etc.), as well as the equipment in central heating and power plants.

040 CIRCUL — Circulatory Facilities - Areas used for the general traffic circulation of a building, including lobbies, corridors, stairwells, elevators, escalators, vestibules which may be ascribed to any floor. Excluded, however, are internal corridors with office suites and waiting rooms (See OFFICE SERV) and internal aisles within an auditorium, chapel, lecture room or spectator seating area.

APPENDIX B

DEFINITIONS: PART 2 - DEPARTMENTAL FUNCTION CLASSIFICATIONS

The use of a limited number of functional or program categories for classification of operating expenditures is a well-established practice among colleges and universities. To help facilitate the allocation of physical facilities according to similar program or function categories, departments were grouped according to the categories defined below. In cases where a department overlapped two or more functions, it was included under the category which reflects the principal mission of the department.

ACADEMIC-ADMINISTRATIVE

ADMINISTRATION AND GENERAL SERVICES

All areas housing activities the primary objective of which is the orderly planning and operation of the instruction, research, and other institutional programs. Included in this category are areas for general administration: offices, work and service areas used by the president, vice-president, business manager, and other administrative personnel; general services such as employment offices, central stores and shops; student services such as placement, student activities, dean of students; and physical plant utility, maintenance and security personnel.

INSTRUCTION AND RESEARCH

INSTRUCTION

All areas used to accomplish the primary academic mission, that is, the organization, transmission or dissemination of knowledge to students on a group or individual basis (except those areas categorized as "Extension and Public Service" or "Activities Related to Instruction and Research").

Examples of the types of rooms which are usually wholly allocated to this function are classrooms, teaching laboratories, faculty offices, and related service facilities, irrespective of the sources of funds used for their support or other budgetary distinctions.

APPENDIX B - PART 2 CONT'D

RESEARCH

All areas used by faculty, staff, or students for investigation, experimentation and observation with the primary objective of the discovery or application of knowledge.

Included in this category are rooms generally referred to as research laboratories, offices assigned to research personnel, and related service facilities. Areas used for activities which are primarily instructional and only secondarily involve research should be classified as Instruction. Conversely, areas used primarily for research and only secondarily involving instruction should be classified as Research.

ACTIVITIES RELATED TO INSTRUCTION AND RESEARCH

All areas having activities primarily concerned with providing practical or laboratory experience on a professional or semi-professional level as part of a degree requirement and which as a by-product may serve a public need or provide specialized manufactured products.

This includes areas which may house (contain) organizationally separate and physically identifiable units which are organized and operated in connection with departments of instruction and research, or to organized research units. Typically included are laboratory schools, nursery schools, farms, dairies, creameries, hospitals, dental clinics, speech and hearing clinics, veterinary hospitals, etc., along with the administrative offices, service and support areas which are inherently associated with these activities. Classrooms or other facilities used for organized instruction or pure research are excluded (see INSTRUCTION and RESEARCH).

LIBRARY

All areas used for the orderly collection storage and retrieval of recorded knowledge. This activity may be housed in a central location or decentralized and housed in two or more separate facilities. Included are all rooms under the general supervision or control of a central or departmental librarian such as reading rooms, study rooms, stack areas, library offices and work areas. Areas used primarily for library science instruction are classified as Instruction.

EXTENSION AND PUBLIC SERVICE

All areas housing activities of which the primary objective is to make available to the general public the benefits of the instructional and/or research activities of an institution of higher learning. This definition is intended to include activities

APPENDIX B - PART 2 CONT'D

such as correspondence courses, radio courses, radio and TV stations, "extension," "adult or continuing education," "agricultural extension," etc. Museums which are primarily of a public service nature, should be included.

SUPPLEMENTARY

AUXILIARY ENTERPRISES

All areas and facilities operated by the institution (or provided by contract with the institution), usually on a self-supporting basis or partly supported by student fees, which in themselves are not requisite to the academic mission of the university, but which provide goods and services to the students, faculty, staff, and/or general public to complement and enhance the overall academic environment.

Included in this category are such areas as post offices, student health care facilities, student unions, faculty clubs, recreation facilities, food service facilities catering to the general campus, hotels/motels, airports, garages and marinas owned and/or operated by the institution and most other over-the-counter merchandising operations directly controlled by the university. Also included in this category are areas used primarily for intercollegiate or varsity athletics, but excluding areas used primarily for academic instruction in physical education.

NON-INSTITUTIONAL ACTIVITIES

All campus areas used by public or private agencies not under the direct supervision or control of the institutional administration. This would include federal and state regulatory, investigative or service units; quasi-university activities which owe their existence to the university, have as a primary mission the support and betterment of the university and whom the university endorses (research foundations, alumni associations, fraternal organizations, etc.); and other wholly independent organizations which may occupy space by contract or for mutual convenience.

RESIDENTIAL

All areas and facilities owned (or operated) by the institution necessary to provide residence for students, faculty or staff. This includes those areas which are required to support this housing such as administrative offices, cafeterias and kitchens designed to explicitly serve residence halls, laundry and shop rooms which serve only the residential complex. Those cafeterias, laundries, shops, or other areas which cater to the campus at large are classified as Auxiliary Enterprises or other appropriate functional category.

APPENDIX B

DEFINITIONS: PART 3 - TYPES OF BUILDING AREA

Six basic area types were used to identify building spaces and their function:

1. Gross Area
2. Net Assignable Area
3. Custodial Area
4. Circulation Area
5. Mechanical Area
6. Construction Area

The definitions of these area types, given below, are based upon Classification of Building Areas (1964), Publication 1235, National Academy of Sciences - National Research Council (this publication is also titled Technical Report No. 50, Federal Construction Council, by Task Group T-56) and have been recommended for adoption by the Facilities Classification Structure Committee of the United States Office of Education (1967).

GROSS AREA

"Gross Area" should be construed to mean the sum of the floor areas included within the outside faces of exterior walls for all stories, or areas, which have floor surfaces.

"Gross Area" should include basements (except unexcavated portions), usable attics, garages, enclosed porches, penthouses and mechanical equipment floors, lobbies, mezzanines, all balconies - inside or outside - utilized for operation functions, and corridors, provided they are within the outside face lines of the building. Roofed loading or shipping platforms should be included whether within or outside the exterior face lines of the building.

Open courts and light wells, or portions of upper floors eliminated by rooms or lobbies which rise above single-floor ceiling height, should not be included in the gross area, nor should unenclosed roofed-over areas or floored surfaces with less than 6 ft 6 in clear head room be included unless they can properly be designated and used as either net assignable, mechanical, circulation, or custodial area.

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NET ASSIGNABLE AREA

"Net Assignable Area" should be construed to mean the sum of all interior areas on all floors of a building assigned to, or available for assignment to, an occupant, including every type of space functionally usable by an occupant (excepting those spaces separately defined in area classifications 3, 4 and 5). Deductions should not normally be made for minor columns and projections necessary to the building.

CUSTODIAL AREA

"Custodial Area" should be construed to mean the sum of all areas on all floors of a building used for building protection, care, maintenance, and operation. Included should be such areas as custodial, locker rooms, janitors' closets, maintenance storerooms.

CIRCULATION AREA

"Circulation Area" should be construed to mean that portion of the gross area - whether or not enclosed by partitions - which is required for physical access to some subdivision of space.

Circulation areas should include, but not be limited to, corridors, elevator shafts, escalators, stairs, loading platforms, lobbies, and tunnels.

MECHANICAL AREA

"Mechanical Area" should be construed to mean that portion of the gross area designed to house mechanical equipment, utility services, and non-private toilet facilities.

CONSTRUCTION AREA

"Construction Area" should be construed to mean that portion of the gross area which cannot be put to use because of the presence of structural features of the building.

Precise computation of construction area is not contemplated under these definitions - some construction features are included in the computation of other areas. However, total construction area should generally be determined by assuming it to be the residual area after the net assignable, circulation, custodial, and mechanical areas have been subtracted from the gross area.

APPENDIX B

DEFINITIONS: PART 4 - BUILDING CONDITION RATINGS

The rating of the general quality of buildings was based upon the evaluation refelcted in the institution's own "Master Development Plan" and upon the best judgment of those responsible for campus development.

(1) Satisfactory - suitable for continued indefinite use with normal maintenance.

(2) Remodel/rehabilitate - building requires minor changes, updating, or major maintenance to restore it to satisfactory condition.

(3) Alter - major changes are necessary within the exterior walls of an existing building because of structural deficiencies, or because the building is unsuited for its mission.

(4) Demolish - building is temporary, is unsafe, structurally unsound or is to be razed to make way for new construction.

When two distinct quality ratings occured in the same building, the entire building was to be classified by the major portion.

APPENDIX B

DEFINITIONS: PART 5 - COURSE LEVELS

Data by course levels were used in approximating the distribution of graduate students for projecting research laboratory space. The level of instruction for each course reflects the level at which the instruction is aimed or for which the course is designed, not upon the relative number of Freshmen, Sophomores, Juniors, etc., enrolled.

L - LOWER DIVISION	Lower division courses are oriented to the Freshmen-Sophomore level. Two-year technology, apprentice, or associate degree courses are included as Lower Division; but courses for students with deficient high school records, as in English or mathematics, are classified as NON-COLLEGIATE.
U - UPPER DIVISION	The Upper Division covers Junior-Senior oriented courses. Fifth-year courses which are part of a program leading to a bachelor's degree (or equivalent) are classified as UPPER DIVISION, but all other courses beyond the fourth year are classified as GRADUATE or DUAL LEVEL.
D - DUAL LEVEL	Dual Level courses are Junior-Senior-Graduate courses specifically designated in catalogs as offered for credit to both advanced undergraduates and graduate students.
G - GRADUATE LEVEL	These are courses available for credit only to graduate and postgraduate students including professional curricula (law, medicine, theology, etc.) which require a bachelor's degree or equivalent as a prerequisite.
N - NON-COLLEGIATE	This category includes courses designed for other than regular degree programs, such as "equivalent" high school courses, extension and correspondence courses, "adult education," and other similar post-high school instruction.

APPENDIX B

DEFINITIONS: PART 6 - INSTRUCTIONAL CLASSIFICATIONS

The data concerning instructional activities of students were gathered in accordance with the following definitions.

NON-LABORATORY

Non-Laboratory describes an organized instructional type in which dissemination of the subject material is by an instructor's direct verbal or visual presentation rather than being acquired through the student's active practice or experimentation. This includes lecture, quiz, recitation, discussion, and seminar activities. Normally, a student earns one credit for each contact hour.

LABORATORY

Laboratory instruction, which can be further subdivided into LABORATORY, LAB SECONDARY, MUSIC STUDIO, and GYMNASIUM, is defined as an organized instructional setting in which the student is the principal performer. It is designed to further the student's physical or mental ability to accomplish some function or to increase his understanding of the subject through the actual performance arrangements, of various practices, procedures, or experiments. The faculty instruction provided is primarily in the form of assistance, advice, and supervision, including audio-tutorial rather than direct material presentation. For laboratory, the student generally earns considerably less than one credit hour for each weekly contact hour.

Laboratory	That portion of a course which is organized and conducted as a series of practical exercises in a group situation.
Lab Secondary	Designate as LAB SEC any secondary organization of laboratory activities defined above. For example, if in addition to the basic lab, a laboratory discussion part of the course meets for at least one whole period each week and is devoted either to the preparation of a forthcoming laboratory or to the discussion and evaluation of a completed laboratory session, it is designated as LAB SEC. Never use LAB SEC without an accompanying LAB for any course.
Gym	This type of instruction is differentiated from other types of group laboratory instruction by

APPENDIX B - PART 6 CONT'D

	the greater degree of physical exertion and activity required of the student. Generally, this type of instruction requires large open gymnasium type facilities normally required of physical education, athletics, or dancing instruction.
Music Studio	That portion of organized music courses characterized by a one-instructor to one-student relationship in which the student receives private instruction in the fundamentals of various musical instruments or techniques.

INDEPENDENT STUDY

Independent study is further subdivided into CLINIC, PRACTICE TEACHING, THESIS RESEARCH, and INDIVIDUAL. They are characterized by an informally organized type of instruction generally (but not necessarily) of laboratory content, for the conduct of directed individual study, reading, writing, in-service work study programs, experimentation, research, or other independent projects for which credit is given. The student works largely on his own initiative without the regular periodic staff contact of the normally defined classroom or laboratory setting.

Clinic	This classification designates the student who is engaged in the practice and use of techniques in the experimentation, observation, or treatment of animate patients. Generally a one-student-to-one-patient relationship exists. The patient's well-being is a direct objective; consequently, basic research to develop these techniques would <u>not</u> be classified as CLINIC.
Practice Teaching	This special classification provides a mechanism for recording the number of students receiving credit for practice teaching in an elementary or secondary school. The student accepts the responsibility and receives credit for material presentation and other normal functions of teaching for an extended period of time in an actual classroom setting.
Thesis Research	RES includes only that portion of a graduate or postgraduate student's program which is registered with the school as thesis research.
Individual	This classification includes other independent projects including individual practice in music, "honors" courses for independent reading or research, and in-service training programs in which the student works more or less individually at off-campus locations, such as "industrial experience" for which credit is given.